CLERK'S COPY.

TRANSCRIPT OF RECORD

Supreme Court of the United States

OCTOBER TERM, 1935

No. 610

NORFOLK AND WESTERN RAILWAY COMPANY,
APPELLANT,

vs.

STATE OF NORTH CAROLINA, ON RELATION OF
A. J. MAXWELL, COMMISSIONER OF REVENUE.

APPEAL FROM THE SUPREME COURT OF THE STATE OF NORTH CAROLINA.

FILED NOVEMBER 30, 1935.

SUPREME COURT OF THE UNITED STATES

OCTOBER TERM, 1935

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NORFOLK AND WESTERN RAILWAY COMPANY, APPELLANT,

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STATE OF NORTH CAROLINA, ON RELATION OF A. J. MAXWELL, COMMISSIONER OF REVENUE.

APPEAL FROM THE SUPREME COURT OF THE STATE OF NORTH CAROLINA.

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No. 459 Seventh District

IN THE
SUPREME COURT OF NORTH CAROLINA
Spring Term, 1935

STATE OF NORTH CAROLINA ON RELATION OF
A. J. MAXWELL, COMMISSIONER
OF REVENUE,
PLAINTIFF,

v.

NORFOLK AND WESTERN RAILWAY COMPANY,
DEFENDANT.

(FROM WAKE)

Before GRADY, J., June Term, 1934, Wake Superior Court—Defendant appealed.

Be it remembered, that a Superior Court begun, continued and held in and for the County of Wake, State of North Carolina, at the Courthouse in the City of Raleigh, N. C., on the fourteenth Monday after the first Monday in March, 1934, it being the 11th day of June, 1934, before the Honorable Henry A. Grady, Judge Presiding, said term of court being a regular term of said court, duly and regularly constituted, the following proceedings were had, to-wit:

This cause was originally heard by the Honorable A. J. Maxwell, Commissioner of Revenue of the State of North Carolina, upon the defendant's written protest against the assessment of income taxes against it for the years 1927, 1928 and 1929. After hearing upon said protest, said Commissioner made and filed a report and order overruling the same, to which the defendant excepted and gave notice of appeal to the Superior Court of Wake County in writing. Pursuant to defendant's appeal, said Commissioner made and certified to said Superior Court a transcript of the proceedings before him as follows, to-wit:

TRANSCRIPT OF RECORD TO THE SUPERIOR COURT OF WAKE COUNTY.

February 11, 1931.

Hon. Vitruvius Royster,
Clerk of the Court,
Wake County,
Raleigh, N. C.

In Re: Norfolk & Western Railway Co.

Dear Sir:

As provided in Section 341 of the Revenue Act of 1929, the provisions of which have been complied with by the above corporation, I am enclosing herewith the records in this case which include:

Original returns filed by the corporation.

Subsequent examination report by Deputy Commissioner of this office.

Protest filed by the corporation.

Brief overruling same by the Commissioner of Revenue.

Acknowledgment of payment of tax assessed.

Bond filed by the corporation in the sum of $200.
Certificates of correctness of enclosed records.

Yours very truly,

A. J. Maxwell,
Commissioner of Revenue.
By: A. E. Beddingfield,
Chief, Income Tax Division.

(Original)

North Carolina
State Department of Revenue
Public-Service Corporation Income Tax Return
(Railroads)

For Calendar Year Ending December 31, 1927.
For Fiscal Year Beginning January 1st and Ending December 31st, 1927.
Name and kind of business—Norfolk and Western Railway Company—Transportation.
Business address—Roanoke, Virginia.

We, the undersigned, Comptroller and treasurer of the corporation for which this return is made, being severally duly sworn, each for himself deposes and says that this return, including the accompanying schedules and statements, has been examined by him and is, to the best of his knowledge and belief, a true and complete return made in good faith, for the taxable period as stated, pursuant to the Revenue Act for 1927 and the Regulations issued under authority thereof.

W. H. WILSON, "Signed"
Comptroller.
JOS. B. LACY, "Signed"
Treasurer.

Sworn to and subscribed before me, this 16th day of February, 1928. W. A. CARPENTER, "Signed"
Notary Public.
(Official Capacity)

My commission expires Jan. 8, 1929.

*Gross operating revenue (when business is wholly within the State)	$	
*Gross operating revenue, including equal mileage proportion within this State of the interstate business (when business is in part within and in part without the State)	$1,384,005.08	
Other income	$ 14,560.77	
Total income		$1,398,565.85
*Operating expenses (when business is wholly within the State)	$	
*Proportionate average of operating expenses (when business is in part within and in part without the State)	$1,804,168.99	
*Uncollectible revenue	$ 802.42	
Rents paid within this State	$ 44,857.99	
Taxes paid in this State, other than income and war profits and excess profits taxes	$ 103,171.35	
Total deductions		$1,953,000.75
Operating income, less deductions		$ 554,434.90
Plus or minus any credit or debit balance received or paid on account of car hire. And when any railroad is partly within and partly without the State then said net operating income shall be increased or decreased to the extent of an equal mileage proportion within this State of any credit or debit balance received or paid		$ 42,699.39
Net taxable income		$ 511,735.51
Tax @ 4½%		$ .....
Main track mileage (system)	2,241.57	
Main track mileage (State)	131.01	

*As per standard Classification of Accounts of Interstate Commerce Commission.

(Original)
North Carolina
State Department of Revenue
Public-Service Corporation Income Tax Return
(Railroads)
For Calendar Year Ending December 31, 1928
For Fiscal Year Beginning January 1st and Ending December 31st, 1928.

Name and kind of business—Norfolk and Western Railway Company—Transportation.

Business address—Roanoke, Virginia.

We, the undersigned, Comptroller and treasurer of the corporation for which this return is made, being severally duly sworn, each for himself deposes and says that this return, including the accompanying schedules and statements, has been examined by him and is, to the best of his knowledge and belief, a true and complete return made in good faith, for the taxable period as stated, pursuant to the Revenue Act for 1927 and the Regulations issued under authority thereof.

W. H. WILSON, "Signed"
Comptroller.
JOS. B. LACY, "Signed"
Treasurer.

Sworn to and subscribed before me, this 27th day of February, 1929. W. A. CARPENTER, "Signed"
Notary Public.
(Official Capacity)

My Commission Expires January 3, 1933.

*Gross operating revenue (when business is wholly within the State)	$	
*Gross operating revenue, including equal mileage proportion within this State of the interstate business (when business is in part within and in part without the State)	$1,305,683.08	
Other income	$ 16,496.14	
Total income		$1,322,179.22
*Operating expenses (when business is wholly within the State)	$	
*Proportionate average of operating expenses (when business is in part within and in part without the State)	$1,773,023.11	
*Uncollectible revenue	$ 424.64	
Rents paid within this State	$ 41,796.34	
Taxes paid in this State, other than income and war profits and excess profits taxes	$ 108,426.87	
Total deductions		$1,923,670.96
Operating income, less deductions		$ 601,491.74
Plus or minus any credit or debit balance received or paid on account of car hire. And when any railroad is partly within and partly without the State then said net operating income shall be increased or decreased to the extent of an equal mileage proportion within this State of any credit or debit balance received or paid		$ 43,938.14
Net taxable income		$ 557,553.60
Tax @ 4½%		$
Main track mileage (system)	2,241.46	
Main track mileage (State)	131.01	

*As per standard Classification of Accounts of Interstate Commerce Commission.

(Original)
North Carolina
State Department of Revenue
Public-Service Corporation Income Tax Return
(Railroads)
For Calendar Year Ending December 31, 1929
For Fiscal Year Beginning January 1, and Ending December 31, 1929.

Name and kind of business—Norfolk and Western Railway Company—Transportation.

Business address—Roanoke, Virginia.

We, the undersigned, Comptroller and treasurer of the corporation for which this return is made, being severally duly sworn, each for himself deposes and says that this return, including the accompanying schedules and statements, has been examined by him and is, to the best of his knowledge and belief, a true and complete return made in good faith, for the taxable period as stated, pursuant to the Revenue Act for 1927 and the Regulations issued under authority thereof.

W. H. WILSON, "Signed"
Comptroller.
W. G. HURT, "Signed"
Asst. Treasurer

Sworn to and subscribed before me, this 18th day of February, 1930. W. A. CARPENTER, "Signed"
Notary Public.
(Official Capacity)
My Commission Expires January 3, 1933.

*Gross operating revenue (when business is wholly within the State)	$	
*Gross operating revenue, including equal mileage proportion within this State of the interstate business (when business is in part within and in part without the State)	$1,300,495.16	
Other income	$ 43,869.73	
Total income		$1,344,364.89
*Operating expenses (when business is wholly within the State)	$	
*Proportionate average of operating expenses (when business is in part within and in part without the State)	$1,703,805.97	
*Uncollectible revenue	$ 1,998.26	
Taxes paid in this State, other than income and war profits and excess profits taxes	$ 111,069.97	
Total deductions		$1,916,874.20
Operating income, less deductions		$ 472,509.31
Plus or minus any credit or debit balance received or paid on account of car hire. And when any railroad is partly within and partly without the State then said net operating income shall be increased or decreased to the extent of an equal mileage proportion within this State of any credit or debit balance received or paid		$ 39,645.37
Net taxable income		$ 432,863.94
Tax @ 4½%		$
Main track mileage (system)	2,240.09	
Main track mileage (State)	131.01	

*As per standard Classification of Accounts of Interstate Commerce Commission.

(As Changed by Revenue Department)
Credited Jan. 9, 1931
North Carolina
State Department of Revenue
Public-Service Corporation Income Tax Return
(Railroads)
For Calendar Year Ending December 31, 1927
For Fiscal Year Beginning January 1st and Ending December 31st, 1927.

Name and kind of business—Norfolk and Western Railway Company—Transportation.

Business address—Roanoke, Virginia.

We, the undersigned, Comptroller and treasurer of the corporation for which this return is made, being severally duly sworn, each for himself deposes and says that this return, including the accompanying schedules and statements, has been examined by him and is, to the best of his knowledge and belief, a true and complete return made in good faith, for the taxable period as stated, pursuant to the Revenue Act of 1927 and the Regulations issued under authority thereof.

W. H. WILSON,
Comptroller.
JOS. B. LACY,
Treasurer.

Sworn to and subscribed before me, this 16th day of February, 1928.
W. A. CARPENTER,
Notary Public.
(Seal)
(Official Capacity)

No tax.

My Commission Expires January 8, 1929.

*Gross operating revenue (when business is wholly within the State)	$ ———	
*Gross operating revenue, including equal mileage proportion within this State of the interstate business (when business is in part within and in part without the State)	$1,384,005.08	
Other income	$ 14,560.77	
Total income		$1,398,565.85
*Operating expenses (when business is wholly within the State)	$ ———	
*Proportionate average of operating expenses (when business is in part within and in part without the State)	$1,804,168.99	
*Uncollectible revenue	$ 802.42	
Rents paid within this State	$ 44,857.99	
Taxes paid in this State, other than income and war profits and excess profits taxes	$ 103,171.35	
Total deductions		$1,953,000.75
Operating income, less deductions		$ 554,434.90
Plus or minus any credit or debt balance received or paid on account of car hire. And when any railroad is partly within and partly without the State then said net operating income shall be increased or decreased to the extent of an equal mileage proportion within this State of any credit or debit balance received or paid		$ 42,699.39
Net taxable income		$ 511,735.51
Tax @ 4½%		$ ———
Main track mileage (system)	2,241.57	
Main track mileage (State)	131.01	
Tax Due		$ 25,737.70
Interest		$ 3,989.34
Total		$ 29,727.04

PHELPS

*As per standard Classification of Accounts of Interstate Commerce Commission.

(As Changed by Revenue Department)
Credited Jan. 9, 1931
North Carolina
State Department of Revenue
Public-Service Corporation Income Tax Return
(Railroads)
For Calendar Year Ending December 31, 1928
For Fiscal Year Beginning January 1st and Ending December 31st, 1928.

Name and kind of business—Norfolk and Western Railway Company—Transportation.

Business address—Roanoke, Virginia.

We, the undersigned, Comptroller and treasurer of the corporation for which this return is made, being severally duly sworn, each for himself deposes and says that this return, including the accompanying schedules and statements, has been examined by him and is, to the best of his knowledge and belief, a true and complete return made in good faith, for the taxable period as stated, pursuant to the Revenue Act of 1927 and the Regulations issued under authority thereof.

W. H. WILSON,
Comptroller.

JOS. B. LACY,
Treasurer.

Sworn to and subscribed before me, this 27th day of February, 1929.

(Seal)

Notary Public.
(Official Capacity)

My Commission Expires January 3, 1933.

*Gross operating revenue (when business is wholly within the State)	$	
*Gross operating revenue, including equal mileage proportion within this State of the interstate business (when business is in part within and part without the State	$1,305,683.06	
Other income	$ 16,496.14	
Total income		$1,322,179.22
*Operating expenses (when business is wholly within the State)	$	
*Proportionate average of operating expenses (when business is in part within and in part without the State) 62.20%	$1,773,025.11	
*Uncollectible revenue	$ 424.64	
Rents paid within this State	$ 41,796.34	
Taxes paid in this State, other than income and war profits and excess profits taxes $107,055.00	$ 108,426.87	
Total deductions		$1,923,670.96
Operating income, less deductions		$ 601,491.74
Plus or minus any credit or debt balance received or paid on account of car hire. And when any railroad is partly within and partly without the State then said net operating income shall be increased or decreased to the extent of an equal mileage proportion within this State of any credit or debit balance received or paid		$ 43,938.14
Net taxable income		$ 557,553.60
Tax @ 4½%		$
Main track mileage (system)	2,241.46	
Main track mileage (State)	131.01	
Tax Due		$ 25,097.32
Interest		$ 2,384.25
Total		$ 27,481.57

PHELPS

*As per standard Classification of Accounts of Interstate Commerce Commission.

(As Changed by Revenue Department)
Credited Jan. 9, 1931
North Carolina
State Department of Revenue
Public-Service Corporation Income Tax Return
(Railroads)
For Calendar Year Ending December 31, 1929
For Fiscal Year Beginning January 1st and Ending December 31st, 1929.

Name and kind of business—Norfolk and Western Railway Company—Transportation.

Business address—Roanoke, Virginia.

We, the undersigned, Comptroller and asst. treasurer of the corporation for which this return is made, being severally duly sworn, each for himself deposes and says that this return, including the accompanying schedules and statements, has been examined by him and is, to the best of his knowledge and belief, a true and complete return made in good faith, for the taxable period as stated, pursuant to the Revenue Act of 1927 and the Regulations issued under authority thereof.

W. H. WILSON,
Comptroller.
W. G. HURT,
Asst. Treasurer

Sworn to and subscribed before me, this 8th day of February, 1930.
(Seal)
W. A. CARPENTER,
Notary Public.
(Official Capacity)

My Commission Expires January 3, 1933.

*Gross operating revenue (when business is wholly within the State)	$	
*Gross operating revenue, including equal mileage proportion within this State of the interstate business (when business is in part within and in part without the State)	$1,300,495.16	
Other income	$ 43,869.73	
Total income		$1,344,364.89
*Operating expenses (when business is wholly within the State)	$	
*Proportionate average of operating expenses (when business is in part within and in part without the Sate) 56.15%	$1,703,805.97	
*Uncollectible revenue	$ 1,998.26	
Taxes paid in this State, other than income and war profits and excess profits taxes	$ 111,069.97	
Total deductions		$1,816,874.20
Operating income, less deductions		$ 472,509.31
Plus or minus any credit or debt balance received or paid on account of car hire. And when any railroad is partly within and partly without the State then said net operating income shall be increased or decreased to the extent of an equal mileage proportion within this State of any credit or debit balance received or paid		$ 39,645.37
Net taxable income		$ 432,863.94
Tax @ 4½%		$
Main track mileage (system)	2,240.09	
Main track mileage (State)	131.01	
Tax Due		$ 28,225.22
Interest		$ 987.88
Total		$ 29,213.10

PHELPS

*As per standard Classification of Accounts of Interstate Commerce Commission.

State of North Carolina
Department of Revenue

A. J. Maxwell, Commissioner
O. S. Thompson, Assistant Commissioner

Raleigh

October 27, 1930.

Received Oct. 28, 1930.

Norfolk & Western Railway Company,
Roanoke, Va.

Gentlemen:

I am in receipt of report of investigation of the above corporation for the years 1924 to 1929, inclusive, made by Deputy Commissioner J. B. Phelps.

Mr. Phelps recommends additional tax and interest for 1924 of $15,653.33, 1925 $24,518.15, 1926 $25,670.97, 1927 $29,727.04, 1928 $27,481.57 and 1929 $29,213.10.

The Law does not permit the Commissioner to assess tax after three years from the date the return is filed, or the liability is known. The assessment for 1927, 1928 and 1929 is hereby made and you are advised of your liability with reference to 1924, 1925 and 1926. I will thank you to forward check for the amounts due at once. If you desire to make protest of this additional tax or to be heard in the matter, you will please make your wishes known within the next thirty days.

I am enclosing herewith copies of reports upon which this tax is based.

Yours truly,
A. J. Maxwell, Commissioner.
By A. E. Beddingfield,
Chief, Income Tax Division.

AEB—w
enc.

Form 10-M-28-No. 24

State of North Carolina
Department of Revenue

R. A. Doughton, Commissioner — O. S. Thompson, Assistant to Commissioner

Raleigh

Name of Corporation: Norfolk and Western Railway Company,
Postoffice: Roanoke, Virginia.

Calendar or Fiscal Year 1927.

Net Income Reported	$ None
Tax Paid	$ None
Additional Income Found	$571,948.82
Additional Tax Found	$ 25,737.70
Interest	$ 3,989.34
Total Tax and Interest Due	$ 29,727.04

Remarks

See schedules No. 1 and No. 2 attached.

Assessment made as proscribed under Section 312 of the Revenue Act of 1927. See letter also.

Date: October 21, 1930.

Investigation made by Jack B. Phelps,
Deputy Commissioner.

(If above space not sufficient, use other side)

Norfolk & Western Railway Company,
Roanoke, Virginia.
1927

SCHEDULE No. 1 NET TAXABLE INCOME

Intra-State Revenue:		
Passenger		$ 22,654.82
Freight		$ 65,391.82
Other		$ 19,459.65
Total intra-state revenue		$ 107,506.29
Inter-state Revenue:		
Freight on ton mile basis within State	$1,093,045.95	
Passenger on road mile basis	$ 84,733.57	
Other—on mileage proportion	$ 98,719.27	
Proportion of interstate revenue within North Carolina		$1,276,498.79
Gross operating revenues		$1,384,005.08
Deductions:		
Proportionate average of operating expenses or operating ratio for their whole business, as shown by the Interstate Commerce Commission Report—62.82% of $1,384,005.08	$ 869,431.99	
Uncollectible revenue	$ 802.42	
Taxes paid in this State	$ 103,171.35	
Total deductions		$ 973,405.76
Operating income less deductions		$ 410,599.32
Add:		
Equal mileage proportion within this State of credit balance on account of car and locomotive hire 5.84% of $2,762,833.96		$ 161,349.50
Net taxable income as corrected		$ 571,948.82

SCHEDULE No. 2 COMPUTATION OF TAX

Taxable at 4½%	$ 25,737.70
Less—tax previously paid	$ — 0 —
Tax due	$ 25,737.70
Interest at 15½%	$ 3,989.34
Tax and interest due for 1927	$ 29,727.04

Form 10-M-28-No. 24

State of North Carolina
Department of Revenue

R. A. Doughton, Commissioner — O. S. Thompson, Assistant to Commissioner

Raleigh

Name of Corporation: Norfolk and Western Railway Company.

Postoffice: Roanoke, Virginia.

Calendar or Fiscal Year 1928.

Net Income Reported	$ None
Tax Paid	$ None
Additional Income Discovered	$557,718.23
Additional Tax Found	$ 25,097.32
Interest	$ 2,384.25
Total Tax and Interest Due	$ 27;481.57

Remarks

See schedule No. 1 and No. 2 attached.

Assessment made as proscribed under Section 312 of the Revenue Act of 1927.

Date October 21, 1930.

Investigation made by Jack B. Phelps,
Deputy Commissioner.

(If above space not sufficient, use other side)

Norfolk and Western Railway Company
Roanoke, Virginia.
1928

SCHEDULE No. 1 NET TAXABLE INCOME

Intra-State Revenue:		
Passenger		$ 17,622.85
Freight		$ 62,428.38
Other		$ 19,418.15
Total Intra-state revenue		$ 99,469.38
Inter-State Revenue:		
Freight on ton mile basis within State	$1,047,066.80	
Passenger—on road mile	$ 65,044.56	
Other—on mileage proportion	$ 94,102.34	
Proportion of inter-state revenue within North Carolina		$1,206,213.70
Gross operating revenues		$1,305,683.08
Deductions:		
Proportionate average of operating expenses or operating ratio for their whole business, as shown by the Inter-state Commerce Commission Report—62.20% of $1,305,683.08	$ 812,134.88	
Uncollectible revenue	$ 424.64	
Taxes paid in this State	$ 108,426.87	
Total deductions		$ 920,986.39
Operating income, less deductions		$ 384,696.69
Add:		
Equal mileage proportion within this State of credit balance on account of car and locomotive hire 5.85% of $2,957,633.19		$ 173,021.54
Net taxable income as corrected		$ 557,718.23

SCHEDULE No. 2 COMPUTATION OF TAX

Taxable at 4½%	$ 25,097.32
Less—tax previously paid	$ — 0 —
Tax due	$ 25,097.32
Interest at 9½%	$ 2,384.25
Tax and interest due for 1928	$ 27,481.57

Form 10-M-28-No. 24

State of North Carolina
Department of Revenue

R. A. Doughton, Commissioner — O. S. Thompson, Assistant to Commissioner

Raleigh

Name of Corporation: Norfolk and Western Railway Company.

Postoffice: Roanoke, Virginia.

Calendar or Fiscal Year 1929.

Net Income Reported	$ None
Tax Paid	$ None
Additional Income Discovered	$627,227.10
Additional Tax Found	$ 28,225.22
Interest	$ 987.88
Total Tax and Interest Due	$ 29,213.10

Remarks

See Schedules No. 1 and No. 2 attached:

Assessment made as proscribed under Section 312 of the Revenue Act of 1929.

Date October 21, 1930.

Investigation made by Jack B. Phelps, Deputy Commissioner.

(If above space not sufficient, use other side)

Norfolk and Western Railway Company
Roanoke, Virginia.
1929

SCHEDULE No. 1 NET TAXABLE INCOME

Intra-State Revenue:		
Passenger		$ 11,899.03
Freight		$ 58,437.24
Other		$ 21,014.20
Total intra-state revenue		$ 91,350.47
Inter-State Revenue:		
Freight on ton mile basis within State	$1,047,949.33	
Passenger—on road mile basis within State	$ 50,237.87	
Other—on mileage proportion	$ 110,957.49	
Proportion of inter-state revenue within North Carolina		$1,209,144.69
Gross operating revenues		$1,300,495.16
Deductions:		
Proportionate average of operating expenses or operating ratio for their whole business as shown by the Interstate Commerce Commission Report—56.15% of $1,300,495.16	$ 730,228.03	
Uncollectible revenue	$ 1,998.26	
Taxes paid in this State	$ 111,069.97	
Total deductions		$ 843,296.26
Operating income, less deductions		$ 457,198.90
Add:		
Equal mileage proportion within this State of credit balance on account of car and locomotive hire 5.85% of $2,906,464.98		$ 170,028.20
Net taxable income as corrected		$ 627,227.10

SCHEDULE No. 2 COMPUTATION OF TAX

Taxable at 4½%	$ 28,225.22
Less—tax previously paid	$ — 0 —
Tax due	$ 28,225.22
Interest at 3½%	$ 987.88
Tax and interest due for 1929	$ 29,213.10

Subject: In re: Protest of Norfolk & Western Railway Company against assessment of additional income taxes against it for the years 1927, 1928 and 1929.

Norfolk and Western Railway Company
Philadelphia, Pa.
At Roanoke, Virginia.

A. J. Maxwell, Esq.,
Commissioner of the Department of Revenue of the State of North Carolina,
Raleigh, N. C.

Dear Sir: The Norfolk and Western Railway Company, a Virginia corporation, conducting an interstate Railway business in the State of Virginia, West Virginia, Ohio, Maryland, Kentucky and North Carolina, hereby protests the assessment by the Department of Revenue of the State of North Carolina against it of additional income taxes and interest thereon for the years 1927, 1928 and 1929, in the following amounts for said respective years:

1927	$25,737.70
Interest	3,989.34
Total	$29,727.04
1928	$25,097.32
Interest	2,384.25
Total	$27,481.57
1929	$28,225.22
Interest	987.88
	$29,213.10

Notice of the assessment of the foregoing taxes was communicated to protestant by you under date of October 27, 1930, and the assessments state that those for the years 1927 and 1928 were made as prescribed by Section 312 of the North Carolina Revenue Act of 1927, and that the assessment for 1929 was made as prescribed by Section 312 of the North Carolina Revenue Act of 1929.

The grounds upon which said protest is predicated are that said Sections 312 operate unconstitutionally upon protestant and in contravention of Article 1, Section 8, Clause 3, of the Federal Constitution and the Due Process and Equal Protection Clauses of the 14th Amendment to said Constitution, in that:

(a) Said Sections, inter alia, provide that for the purpose of ascertaining protestant's operating expenses for said years, the ratio between protestant's operating expenses and operating revenues for its entire System shall be employed, instead of the ratio between operating expenses and operating revenues in the State of North Carolina.

As the volume and density of protestant's business outside of North Carolina is much greater than that in said State, and the ratio between its operating expenses and operating revenues for protestant's entire railway system is much lower than said ratio within said State, the effect of said Sections 312 is to prescribe arbitrarily that protestant's operating expenses in North Carolina shall be an assumed amount much lower than the actual amount thereof. In point of fact, protestant's operating expenses for each of the years 1927, 1928 and 1929 were in excess of its North Carolina revenues from all sources (both intrastate and interstate), and hence said Sections 312 result in attributing to North Carolina income which

had in fact no existence in that State. This is readily demonstrable by the following figures for the year 1927, which are a sufficient approximation to those of 1928 and 1929 to be used as a basis of illustration of the results for all three of said years:

Tons 1 mile per mile of road in N. C.	932,079
Tons 1 mile per mile of road on balance of system	7,060,311
Tons 1 mile per mile of road for whole system	6,702.062
Freight revenue per mile of road in N. C.	8.839.66
Same for balance of system	46 825.13
Total for entire system	44,604.54
Gross Railway operating revenues per mile of road in N. C.	10,560.90
Same for balance of system	51,908.94
Same for total system	49,491.78
Gross operating revenues for N. C.	1,384,005.08
Gross operating revenues for balance of system	109,564,195.56
Gross operating revenues for total system	110,948,200.64
Railway operating expenses for N. C. (not including taxes, uncollectible revenues or rents)	1,656,048.24
Same for entire system	69,696,125.63

Ration between operating expenses and operating revenues in N. C.	119.65%
Ratio between entire system operating expenses and operating revenues	62.82%

The effect of said Sections is to tax revenues not earned in the State of North Carolina and to appropriate for taxation in that State income from interstate commerce earned beyond its jurisdiction. Other railroads entering the State of North Carolina have within that State denser earnings and as a result the application of system ratio in their cases does not augment income by importation of earnings from outside of the State. Accordingly the statute as applied to the Norfolk and Western Railway Company works inequality in comparison with the application of the statute to other North Carolina railroads, and deprives your protestant of equal protection of the law.

(b) Said Sections, inter alia, also provide (in the second paragraph thereof) as to the protestant that the net income ascertained in the manner prescribed in the first paragraphs thereof, shall be increased or decreased to the extent of an equal mileage proportion in North Carolina of any credit or debit balance received or paid, as the case may be, on account of car hire. Protestant's receipts from car or locomotive hire in the State of North Carolina are in fact only a negligible portion of its entire receipts from said hire, and the effect of the "car hire" paragraph of said Sections 312 (which predicate the car hire apportionable to North Carolina upon the ratio between the total number of miles of protestant's road in North Carolina and protestant's total road mileage)

is to allot to North Carolina an amount of receipts from car hire greatly in excess of a proper apportionment of car hire balance to that State, and again results in taxing in North Carolina revenue which had no actual situs in North Carolina, but which was earned beyond the jurisdiction of said State. In short, the car hire paragraph of said Sections 312 appropriates to North Carolina for taxation car hire revenue not earned in said State.

Protestant asks an opportunity to be heard with respect to the propriety of said assessments, and in the event that it is not or cannot be relieved thereof and is compelled to pay said assessments, it does so under this protest. Respectfully,

NORFOLK AND WESTERN RAILWAY COMPANY, By F. M. Rivinus, General Solicitor.

November 26th, 1930.

State of North Carolina—Before the Commissioner of Revenue.

In re: Protest of Norfolk & Western Railway Company against assessment of additional income taxes against it for the years 1927, 1928 and 1929.

The Norfolk & Western Railway Company operates three lines of railway in this State. Two of these three lines have been owned and operated by it for many years. One of these lines extends from Durham, N. C., to the Virginia-North Carolina line, and on to a connection with its main line at Lynchburg, Va. The other line runs from Winston-Salem, N. C., to the Virginia-North Carolina line, and on to a connection with its main line at Roanoke, Va. In more recent years it constructed a line

from Abingdon, Va., across the State line to Elkland, N. C.

An examination and analysis of the income tax returns of the Norfolk & Western Railway Company during the current year disclosed that none of its income tax returns had ever been made in accordance with law, Section 312 of the income tax law. That section of the law provides a formula for ascertaining the net income taxable in this State. "Gross operating revenues" are to be obtained by taking all revenue earned on business between points in the State, and on interstate business a mileage proportion covering distance of movement within the State. The statute has been followed in setting up gross revenue. To ascertain the proportion of gross operating revenue, that is, net income, the statute provides that expenses of operation shall be obtained by taking "the proportionate average of 'operating expenses,' or 'operating ratio,' for their whole business, as shown by the Interstate Commerce Commission standard classification of accounts." This provision of the law has never been complied with by the Norfolk & Western Railway, and instead of using this simple formula, as required by the statute, it has used an independent method of its own selection, and a method which for every year since our income tax law was enacted shows an operating expense assigned against its operations in North Carolina greater than its operating income, and therefore it has never paid any income tax to the State.

On October 27, 1930, after a careful analysis of its returns, and an audit of its accounts by a representative of the State Department of Revenue, an assessment of income taxes for the years 1927, 1928 and 1929 was made as follows:

1927	$25,737.70
Interest	3,989.34
Total	$29,727.04
1928	$25,097.32
Interest	2,384.25
Total	$27,481.57
1929	$28,225.22
Interest	$ 987.88
Total	$29,213.10

No assessment was made for any year prior to 1927 for the reason that the statute limits the authority of the Commissioner of Revenue to three years in making assessments of additional or delinquent income taxes, except upon fraudulent returns.

The Norfolk & Western Railway Company was duly notified of this assessment under date of October 27, 1930.

Within the thirty days statutory time protest of the assessment for these years was made, with request for hearing on exceptions, which was had at the office of the Commissioner of Revenue on December 16, 1930.

The protest of the Norfolk & Western Railway alleges that the assessment made violates its constitutional rights.

(a) In that it employs the system ratio of operating expenses, and that its effect is to "appropriate for taxation in that State income from interstate commerce earned beyond its jurisdiction," and

(b) In that, under the statute, there is reflected to its North Carolina mileage "any credit or debit balance re-

ceived or paid, as the case may be, on account of car hire."

In support of its contention (a) it is shown that its gross operating revenues per mile of road in North Carolina is $10,560.90, and for its entire system $49,491.78 per mile of road. Our income tax law seeks carefully to avoid taxing income from interstate commerce earned beyond its borders, and for this reason it requires that only a mileage proportion of revenue on interstate shipments be included, even though, as in the case of the Norfolk & Western, the mileage proportion within this State may be very small of shipments having origin and destination in this State and moving for long distances beyond its borders. Much of the high class traffic handled by the Norfolk & Western from Durham and Winston-Salem must be of this long distance character, and handled by that carrier to and from the distant ends of its system lines. But on all such traffic our law includes only the small proportions of that revenue earned by it on such shipments based on the short mileage within this State. That provision of our law disclaims any purpose to tax income earned beyond its borders. It is admitted that its gross revenue can be, and is, set up on this exact basis of accounting and allocation.

It is admitted that operating expenses cannot be accurately set up by State lines. When it comes to dividing operating expenses by State lines, or even by divisions of railroad, it is admitted that some general basis of allocation must be used. Our statute was set up in recognition of this necessity, and it used a method of allocation that is simple and used in the accounting of every railroad reporting to the Interstate Commerce Commission. Taking all the operations of a railroad within a given year, what does it cost it to earn a dollar? That is, its "operat-

ing ratio" for that year. Our statute says that figure shall be used as the basis of its operating expenses within this State, and that after applying that figure to its "gross operating revenue" within this State the difference, after giving effect to other specific deductions, shall be taxable income. In its protest the respondent shows its system "operating ratio" for the year 1927 to have been 62.82 per cent. The method which it used in its income tax report showed "operating ratio" for its lines in North Carolina to be 119,65 per cent. On this basis it suffered a net loss of twenty cents on every dollar of traffic it handled in North Carolina, before giving effect to any return on its capital invested in property in this State. On this basis it will have lost twice the amount of its total investment in North Carolina since our income tax law was enacted in 1921.

The fact that traffic on its North Carolina lines is less than for its whole system of main and branch lines is persuasive that its earnings, mile for mile, are equally less in North Carolina than for its whole system, but not at all convincing that profits on its North Carolina lines are not proportionately as large. The volume of business on its North Carolina lines is large enough for profitable operation of branch line service, feeding its main lines. If there is some slight variation in the unit cost of handling traffic in favor of heavier volume, it is still admittedly necessary to use some basis of allocation of expenses. In seeking a rule of allocation for all lines the statute adopted the one rule that is fair as a basis for universal application. It has met the test of court approval (A. C. L. v. Doughton, U. S. 67 Law Edition, 1151) and the test of experience as applied to all other rail lines operating in this State.

The figures used in respondent's protest furnish some ground for contention, in one important phase, that its

North Carolina business is relatively more profitable than its average business. It shows traffic tonnage for its system, per mile of road, is seven and a half times as large as for its North Carolina mileage, but its revenue per mile of road for its system mileage is less than five times as large as its revenue per mile of road for its North Carolina mileage, and its revenue figures are on an exact accounting basis. This indicates that traffic on its North Carolina lines is of a higher type of merchandise, moving at higher rates, than the average for its system, or that its level of charges for moving traffic on its North Carolina lines is substantially higher than for its system lines, or both, and would indicate a relatively larger margin of profit on the movement of this traffic.

Respondent's exception (b) that its report is required to include "any credit or debit balance received or paid, as the case may be, on account of car hire," does not seem to require elaboration of reason. That provision of our statute carries on its face the purpose to be fair. Every carrier has a car hire account. For one carrier it may be a credit and for another a debit, or for a particular carrier it may be a credit in one year and a debit in another year. Every carrier in every year has either a credit balance on this account, adding to its income, or a debit balance, subtracting from its income. Whichever it may by the statute attributes a mileage proportion of such gain or loss to the mileage in North Carolina.

The material points of the respondents' exceptions have been considered at some length both because of the substantial sum involved, and also because the exceptions are directed on constitutional grounds to the validity of the statute.

For the reasons indicated the exceptions are overruled, and the amount of tax and interest due by the Norfolk & Western Railway Company for the years 1927, 1928 and

1929 is found to be, as of October 27, 1930, eighty-six thousand four hundred and eighteen dollars and seventy-one cents ($86,418.71).

This 29th day of December, 1930.

(s) A. J. MAXWELL,
Commissioner of Revenue.

NOTICE OF APPEAL AND EXCEPTIONS OF NORFOLK AND WESTERN RAILWAY COMPANY.

State of North Carolina—Before the Commissioner of Revenue.

In re: Protest of Norfolk and Western Railway Company Against Assessment of Additional Income Taxes Against It for the Years 1927, 1928 and 1929.

Now comes Norfolk and Western Railway Company on this 8th day of January, 1931, and gives this notice of appeal to the Superior Court of Wake County, North Carolina, from the Report and Order of Honorable A. J. Maxwell, Commissioner of Revenue of the State of North Carolina, filed on the 29th day of December, 1930, and files its exceptions thereto as follows:

I. The said report and order discusses and overrules exceptions of the Railway Company to re-assessment of income tax for the years 1927, 1928 and 1929 and finds to be due as of October 27, 1930, the amount of tax and interest $86,418.71. The conclusion of amount of tax due is derived from only three material findings:

(1) Gross State revenue;

(2) An apportionment thereof by reference to the annual ratio between gross revenue and operating expenses of the entire system; and

(3) The amount of the tax, which is the result of subtracting from (1) a proportion to represent operating expenses ascertained by reference to the system ratio.

This exception is particularly directed against the application of the system ratio as irrelevant in ascertaining North Carolina operating expenses which alone may be deducted from North Carolina gross revenue to find net North Carolina revenue or income, on which the tax must be based.

The Commissioner refused to ascertain and give sole effect to expenses demonstrably incurred in earning gross State revenue, and as a result he finds by the method above indicated a net income for taxation within the State which has no existence in fact. The result of such finding and assessment in a taxation of income necessarly derived from operations beyond the reach of the State, a burden on interstate commerce and an inequality of application of the statute in comparison with other North Carolina railroads, in violation of Article 1, Section 8, Clause 3, of the Constitution of the United States, and deprives the Railway Company of due process of law and equal protection of the law, in violation of the Fourteenth Amendment of said Constitution. The Commissioner does not recognize the Constitutional necessity of deducting only the cost of doing business within the State from gross revenue within the State, in order to find net income within the State.

The Railway Company represents that to avoid fatal Constitutional objection the State income tax statutes may be construed and must be construed as directing ascertainment of State net income by deduction of State operating expenses alone from State gross revenue; or, if the State statute cannot be so construed, it must be declared unconstitutional as applied by the Commissioner to the affairs of this Railway Company.

In support of its exception to the reassessment, the Railway Company offered to show to the Commissioner that by reason of heavier system traffic which does not touch the State the application of a system ratio to the operation of the branch lines which do touch the State is altogether irrelevant; and that, as originally reported by the Railway Company, the operating expenses of its branches entering the State exceeded in all of the years in question the gross operating revenues of the branches. But the Commissioner declined and refused to give effect to such proofs.

II. Particularly the Railway Company excepts for that the Commissioner of Revenue failed to find as a fact that the gross operating expenses for the business which produced the gross operating revenue, as found by the North Carolina Income Tax Acts, exceeded such gross operating revenue in the years in question.

III. For that the Commissioner of Revenue failed to find as a fact that the Railway Company had no net income in the years 1927, 1928 and 1929, under the provisions of the North Carolina Revenue Acts.

IV. For that the Commissioner of Revenue failed to find as a fact that the application of the system operating ratio to North Carolina gross revenue results in a fictitious finding of North Carolina income which has in fact no existence in the State, and appropriates for taxation in the State income from interstate and intrastate commerce earned beyond its jurisdiction.

V. For that the Commissioner of Revenue failed to find as a fact that the application of the system ratio to North Carolina gross revenues in determining net income of the Railway Company in that State operates under the facts presented unequally upon this Railway Company as compared with other railroads operating in

the State, and deprives this Railway Company of due process of law and equal protection of the law.

VI. For that the Commissioner of Revenue failed to hold to the conclusion of law that the Revenue Act of North Carolina of 1927 (Public Laws of 1927, Chapter 80, Sec. 312) and the Act of North Carolina of 1929 (Public Laws of 1929, Chapter 345, Sec. 312) as applied by him to determine the net income of the Railway Company for the years 1927, 1928 and 1929, are unconstitutional in that they violate the provisions of the Commerce Clause of Article 1, Section 8, Clause 3 of the Constitution of the United States, and the due process and equal protection clauses of the Fourteenth Amendment to the said Constitution.

VII. For that the Commissioner of Revenue overruled the protest filed by the Railway Company under date of November 6, 1930, and failed to find that the income taxes for the years 1927, 1928 and 1929 should not have been assessed.

VIII. Specific exceptions are noted as follows:

(1) The said report and order contains the following statement:

An examination and analysis of the income tax returns of the Norfolk & Western Railway Company during the current year disclosed that none of its income tax returns had ever been made in accordance with law, Section 312 of the Income Tax Law.

The basis of this exception is that it is incorrect and that an examination and analysis of the income tax returns of the Norfolk & Western Railway Company during the current year will disclose that all of its income tax returns have been made in accordance with law, Section 312 of the Income Tax Law, when properly construed in the light of the provisions of the Constitution of the United States, and particularly Article 1, Section

8, Clause 3, of said Constitution, and the Due process and Equal Protection clauses of the Fourteenth Amendment of said Constitution.

(2). The said report and order contains the following statement:

That section of the law provides a formula for ascertaining the net income taxable in this State. "Gross operating revenues" are to be obtained by taking all revenue earned on business between points in the State, and on interstate business a mileage proportion covering distance of movement within the State. The statute has been followed in setting up gross revenue. To ascertain the proportion of gross operating revenue that is net income the statute provides that expenses of operation shall be obtained by taking "the proportionate average of 'operating expenses,' or 'operating ratio,' for their whole business, as shown by the Interstate Commerce Commission standard classification of accounts." This provision of the law has never been complied with by the Norfolk & Western Railway, and instead of using this simple formula, as required by the statute, it has used an independent method of its own selection, and a method which for every year since our income tax law was enacted shows an operating expense assigned against its operations in North Carolina greater than its operating income, and therefore it has never paid any income tax to the State.

The basis of this exception is that the said statement does not correctly set forth the alternative method of ascertaining net income provided by the North Carolina statute, that is: by a comparison of the gross operating revenues as provided by the statute and the gross operating expenses within the State of North Carolina, and in the said statement the Commissioner of Revenue has failed to find that the Norfolk & Western Railway Com-

pany by using this alternative as provided by the statute showed dthat it has had no net income taxable in the State of North Carolina during the period referred to in said statement.

(3) The said report and order contains the following statement:

On October 27, 1930, after a careful analysis of its returns, and an audit of its accounts by a representative of the State Department of Revenue, an assessment of income taxes for the years 1927, 1928 and 1929 was made as follows:

1927	$25,737.70
Interest	3,989.34
Total	$29,727.04
1928	$25,097.32
Interest	2,384.25
Total	$27,481.57
1929	$28,225.22
Interest	987.88
Total	$29,213.10

The basis of the exception to this statement is that the said assessment of income taxes for the years 1927, 1928 and 1929 was based upon the calculation of net income by a method which taxes revenues not earned in the State of North Carolina and appropriates for taxation in that State income from interstate commerce earned beyond its jurisdiction and which, as applied to the Norfolk & Western Railway Company, works inequality in comparison with the application of the statute to other North Carolina railroads, all in contravention of Article 1, Section 8, Clause 3 of the Constitution of the United

States, and deprives the Norfolk & Western Railway Company of due process of law and the equal protection of the law, in violation of the Fourteenth Amendment of said Constitution.

(4) The said report and order contains the following statement:

The protest of the Norfolk & Western Railway alleges that the assessment made violates its constitutional rights:

(a) In that it employs the system ratio of operating expenses, and that its effect is to "appropriate for taxation in that State income from interstate commerce earned beyond its jurisdiction," and

(b) In that, under the statute, there is reflected to its North Carolina mileage "any credit or debit balance received or paid, as the case may be, on account of car hire."

The basis of this exception is that it does not fully set forth the grounds of the protest of the Norfolk & Western Railway Company, and reference is hereby made to the formal protest filed for a full statement of the grounds of said protest.

(5) The said report and order contains the following statement:

It is admitted that operating expenses cannot be accurately set up by State lines.

The basis of this exception is that such admission was not made and is not now made by the Norfolk & Western Railway Company. To the contrary, it is contended by the Norfolk & Western Railway Company that operating expenses can be accurately set up by State lines and the Norfolk & Western Railway Company specifically excepts to the failure of the Commissioner of Revenue to so find, and to find as a fact that its operating expenses within the State of North Carolina exceeded its gross

revenues as defined by the Revenue Act, and that said Railway Company had no net income taxable under the North Carolina Revenue Acts for the years 1927, 1928 and 1929.

(6) The said report and order contains the following statement:

When it comes to dividing operating expenses by State lines, or even by divisions of railroad, it is admitted that some general basis of allocation must be used.

The basis of this exception is that such admission was not made by the Norfolk & Western Railway Company. To the contrary, it is contended by said Railway Company that a logical, scientific and fair basis of allocation of operating expenses by State lines and by divisions of railroad can be and has been adopted by the Norfolk & Western Railway Company, in determining whether it had net income for the years 1927, 1928 and 1929 taxable under the Revenue Acts of North Carolina.

(7) The said report and order contains the following statement:

Our statute was set up in recognition of this necessity, and it used a method of allocation that is simple and used in the accounting of every railroad reporting to the Interstate Commerce Commission.

The basis of this exception is that it is merely a conclusion of the Commissioner of Revenue and is not supported by anything in the record; and, further, this statement ignores the alternative method fixed by the statute.

(8) The said report and order contains the following statement:

Taking all the operations of a railroad within a given year, what does it cost it to earn a dollar? That is its "operating ratio" for that year. Our statute says that figure shall be used as the basis of its operating expenses within this State, and that after applying that figure to its

"gross operating revenue" within this State the difference, after giving effect to other specific deductions, shall be taxable income.

The basis of this exception is that the formula set forth is not the method of determining "operating ratio" fixed by the statute, in that the said statement makes reference to all the operations of a railroad within a given year and is not restricted to the operations within the State of North Carolina.

(9) The said report and order contains the following statement:

In its protest the respondent shows its system "operating ratio" for the year 1927 to have been 62.82 per cent. The method which it used in its income tax report showed "operating ratio" for its lines in North Carolina to be 119.65 per cent. On this basis it suffered a net loss of twenty cents on every dollar of traffic it handled in North Carolina, before giving effect to any return on its capital invested in property in this State. On this basis it will have lost twice the amount of its total investment in North Carolina since our income tax law was enacted in 1921.

The basis of this exception is that the conclusion drawn is not accurate and such conclusion is not supported by any facts in the record in this matter.

(10) The said report and order contains the following statement:

The volume of business on its North Carolina lines is large enough for profitable operation of branch line service, feeding its main lines.

The basis of this exception is that the statement is incorrect.

(11) The said report and order contains the following statement:

If there is some slight variation in the unit cost of handling traffic in favor of heavier volume, it is still admittedly necessary to use some basis of allocation of expenses.

The basis of this exception is that the reference to the variation in the unit cost of handling traffic in favor of heavier volume as being slight is incorrect, and it is also incorrect to state that it is necessary to use some basis of allocation of expenses. The larger portion of expenses can be definitely fixed as being incurred within the borders of the State of North Carolina and such expenses as cannot be so definitely fixed can be allocated by a logical, scientific and well-recognized method of determining operating expenses within State lines.

(12) The said report and order contains the following statement:

In seeking a rule of allocation for all lines the statute adopted the one rule that is fair as a basis for universal application. It has met the test of court approval (A. C. L. v. Doughton, U. S. 67 Law Edition, 1151) and the test of experience as applied to all other rail lines operating in this State.

The basis of this exception is that it is incorrect to say that the statute adopted a single rule, in view of the alternative rule provided by the statute, and it is incorrect to say that the rule referred to in the said report and order is fair as a basis for universal application. That the application of such a rule is not fair to the Norfolk & Western Railway Company is demonstrated by the fact that by the application of such rule it has been determined that the Norfolk & Western Railway Company had net income taxable under the statute in the years 1927, 1928 and 1929, when, in fact, the cost of operation in North Carolina exceeded the gross operating revenue as defined by the Revenue Acts of North Carolina. The state-

ment that the said rule has met the test of court approval and the test of experience as applied to all other rail lines operating in this State is not supported by any facts appearing in this record.

(13) The said report and order contains the following statement:

The figures used in respondent's protest furnish some ground for contention, in one important phase, that its North Carolina business is relatively more profitable than its average business. It shows traffic tonnage for its system, per mile of road, is seven and a half times as large as for its North Carolina mileage, but its revenue per mile of road for its system is less than five times as large as its revenue per mile of road for its North Carolina mileage, and its revenue figures are on an exact accounting basis. This indicates that traffic on its North Carolina lines is of a higher type of merchandise, moving at higher rates, than the average for its system, or that its level of charges for moving traffic on its North Carolina lines is substantially higher than for its system lines, or both, and would indicate a relatively larger margin of profit on the movement of this traffic.

The basis of this exception is that the said statement is purely argumentative and the conclusion reached is not supported by any facts appearing in the record in this case.

NORFOLK & WESTERN RAILWAY CO.,
By F. M. RIVINUS,
W. W. COXE,
BURTON CRAIGE,
MURRAY ALLEN,
Its Attorneys.

The foregoing exceptions, and each of them, are hereby overruled, to which the Norfolk & Western Railway

Company excepts and appeals to the Superior Court of Wake County. Notice of such appeal is hereby accepted by the Commissioner of Revenue and receipt of the amount of the taxes is hereby acknowleged, payment of same having been made under protest, upon the ground that the said taxes are not due and are calculated by an erroneous and unconstitutional rule, and upon the ground that the statute upon which they are based, as construed by the Commissioner, violates the United States Constitution, Article 1, Section 8, Clause 3, and the Fourteenth Amendment to said Constitution, and receipt of appeal bond in the sum of $200.00 is also acknowledged, and it is ordered that the record be certified and transmitted to the Superior Court of Wake County.

This 8th day of January, 1931.

(S) A. J. MAXWELL,
Commissioner of Revenue.

APPEAL BOND.

State of North Carolina—Before the Commissioner of Revenue.

In Re: Protest of Norfolk & Western Railway Company Against Assessment of Additional Income Taxes Against it for the Years 1927, 1928 and 1929.

Whereas, on the 29th day of December, 1930, the Hon. A. J. Maxwell, Commissioner of Revenue of the State of North Carolina, made a report and order requiring the Norfolk & Western Railway Company to pay additional income taxes for the years 1927, 1928 and 1929, and confirming assessment of such additional income taxes previously levied; and

Whereas, the Norfolk & Western Railway Company has given notice of appeal to the Superior Court of

Wake County, North Carolina, from said report and order, and has filed exceptions thereto and will in due course perfect such appeal:

Now, therefore, we, Norfolk & Western Railway Company as principal, and United States Fidelity and Guaranty Company, as surety, undertake, pursuant to the statute, that the said appellant will pay all costs which may be awarded against said appellant on such appeal, not exceeding Two Hundred ($200.00) Dollars.

This 7th day of January, 1931.

NORFOLK & WESTERN RAILWAY CO. (Seal)
By MURRAY ALLEN,
Its Attorney.

UNITED STATES FIDELITY & GUARANTY CO.
By A. M. MAUPIN (Seal)
Its Attorney-in-Fact.

CERTIFICATE.

State of North Carolina on relation of A. J. Maxwell, Commissioner of Revenue, v. Norfolk & Western Railway Company.

This is to hereby certify that the foregoing is a full, true and perfect transcript of the record in the matter of Protest of Norfolk & Western Railway Company against assessment of additional income taxes against it for the years 1927, 1928 and 1929, as the same appears of record in the office of the undesigned Commissioner of Revenue, and the same is transmitted herewith to the Clerk of the Superior Court of Wake County as the record on appeal to said court.

(Signed) A. J. MAXWELL,
Commissioner of Revenue.

This 31st day of January, 1931.

At June Term, 1931, of the Superior Court of Wake County, his Honor, G. V. Cooper, Special Judge Presiding, made an order referring this case to J. Crawford Biggs, Esq., to hear the evidence and report his findings of fact and conclusions of law to the Court, as follows:

ORDER OF REFERENCE.

North Carolina—Wake County.
In the Superior Court—June Term, 1931.

State of North Carolina on the Relation of Allen J. Maxwell, Commissioner of Revenue v. Norfolk & Western Railway Company.

This cause coming on to be heard before his Honor, G. V. Cowper, Judge Presiding at Special June Term, 1931, of the Superior Court of Wake County, upon application of defendant, Norfolk & Western Railway Company, for a reference, and it appearing to the Court that this is a proper case for such reference.

It is now ordered and decreed that this case be and it is hereby referred to J. Crawford Biggs, Esq., to hear the evidence and report his findings of fact and conclusions of law to the Court.

(Signed) G. V. COWPER,
Special Judge Presiding.

To the foregoing order plaintiff excepts.

The plaintiff filed with the Referee, J. Crawford Biggs, Esq., the following requests for findings of fact and conclusions of law:

PLAINTIFF'S REQUEST FOR FINDINGS OF FACT AND CONCLUSIONS OF LAW.

North Carolina—Wake County
In the Superior Court.

The State of North Carolina on the Relation of A. J. Maxwell, Commissioner of Revenue

v.

Norfolk & Western Railway Company.

The plaintiff respectfully requests the following Findings of Fact and Conclusions of Law:

1. On the 9th day of January, 1931, the defendant paid to the Commissioner of Revenue the taxes imposed upon its net income in the State of North Carolina for the years 1927, 1928 and 1929, with interest thereon, in the amount of $86,421.71. The tax was paid under protest and this proceeding is prosecuted by defendant to recover the tax, the refund of which was refused.

2. The defendant is a common carrier of freight and passengers. Its lines of Railway lie in North Carolina, Virginia, Maryland, West Virginia, Kentucky and Ohio. Its lines traverse country differing greatly in typography from mountains to plains. Three of its branch lines enter North Carolina. The principal two of such branches run southward from the Virginia-North Carolina State line to the cities of Winston-Salem and Durham, respectively. At both of these cities are located large factories, cotton mills, hosiery mills, and other enterprises which use defendant's railroad. The Southern and Winston-Salem Southbound Railroads also enter Winston-Salem, and other roads entering Durham are the Southern, Seaboard and Norfolk Southern.

Defendant's road is principally used for transporting coal, about eighty per cent of its total system tonnage

being in that commodity, and about fifty per cent of its North Carolina traffic. Therefore, twenty per cent of its system traffic consists of merchandise and commodities other than coal, and about fifty per cent of its North Carolina traffic is other than coal. The unit gross revenues on coal are less than those on other traffic.

All of the defendant's railroad lies in Official Classification Territory save the two branches extending from Roanoke, Va. to Winston-Salem, and from Lynchburg, Va., to Durham. The Official Territory mileage of the railway carries by far the greater proportion of its traffic.

There is a difference in the freight rates and ratings in the two classification territories. The freight rates in Southern territory are generally higher in level than rates on similar commodities in Official territory. The two principal branch lines entering North Carolina operate under the Southern territory rates and ratings and certain arbitrary rates are also published to apply to those lines which occupy relative high levels.

In general, the traffic moving over the North Carolina principal branches is superior in gross revenue quality and moves under rates which are generally higher than those prevailing on the system at large outside of North Carolina.

The Railway's lines outside of North Carolina carry traffic of greater density per mile of road than does North Carolina mileage. Moreover, the branch lines extending into North Carolina are fraught with curves and heavy grades, although other sections of the railroad are by no means free of similar obstacles to operation.

3. The unit costs of freight operation in North Carolina are greater than the average on the remainder of the system, but to what extent is not clearly shown. It does not appear that operation over the North Carolina

sections of the branches serving it is relatively more costly than over the remainder of such branches lying in Virginia. Lighter traffic density over the branch lines appears as a principal reason for the operating costs there being greater than on the remainder of the system. To the extent material here, however, the pecuniary effect of traffic density as well as typography is represented in dollars of operating cost. The defendant has not instituted a comparison of the unit costs of operation on the North Carolina, or the entire section, of the branch lines serving that State, and those appurtenant to the remainder of the system, although it arises upon the evidence. No specific finding is asked for or can be made concerning the difference in such costs.

4. The evidence bearing upon the altitude of the rate levels prevailing on the branch lines, and on the North Carolina sections thereof, and on the remainder of the system situate in Official territory, conflicts in degree on the showings of the respective parties, but the weight thereof is to the effect that per net ton-mile the rates prevailing in North Carolina, and on the branches, are relatively higher per unit than those obtaining on the remainder of the system for the same commodities and classes of traffic. The manner in which gross revenues are apportioned to the State in the amounts in evidence does not fully accredit to the State gross revenue resulting from the higher rates published for movement of interstate traffic over the branch lines where such rates generally are relatively higher than for the remainder of the movement over other sections of the railroad. On a revenue net ton-mile basis it is shown that the average unit yield of North Carolina intrastate traffic is much greater than for all other intrastate traffic handled within other States collectively.

5. The evidence shows that while the actual amounts of revenue earned on intrastate traffic are directly assigned to the State, that proportion of interstate revenue on traffic "touching" North Carolina is on a straight mileage prorate based on the actual movement of each individual shipment (after the Railway's figures were corrected from incorrect basis formerly used). The method by which interstate revenue was assigned to North Carolina does not, therefore, concentrate in that State's allowance any other amount than the ratable proportion based on distance hauled. Any revenue accruing from higher rate levels prevailing over the branch lines as a whole, and over the southern sections thereof lying in North Carolina, is averaged over the entire length of haul for individual shipments. The typical distance interstate shipments touching North Carolina move outside the State is several times the distance they move inside the State. The Railway's witness, Vaughan, testified that complete sets of accounts showing both revenues and expenses are kept for the individual branch lines in question. But the gross revenues earned on such branches were not presented in evidence. Other evidence of the Railway discloses that it is impossible for the railway to trace, determine, and aggregate the expense attending the movement of interstate traffic touching the State, some of which moves beyond the confines of the branches serving the State of North Carolina.

6. The defendant railway presents evidence purporting to show the expense of its operations in North Carolina. The amounts so assigned to the State consist of a portion, based on a road mileage prorate in the case of each of the branches, of expenses first assigned to the branch as a whole. Of this total branch expense a preponderant part of it, save that appertaining to the maintenance of cars and locomotives, is assigned direct to the

branch on which it was incurred. The expense of maintaining cars and locomotives, save for 49/100ths of 1 per cent of the total amounts assigned to all branches, is a portion of the total expense of this character for the system as a whole. The amounts assigned to the respective branches out of the system total were determined on the basis of ton-miles run by locomotives and of car-miles made by cars. It is not shown that the total expenses so assigned to the respective branches appear in the accounts reflecting the operating expenses and revenues of each of the branch lines.

The aggregate of expenses assigned by the Railway to North Carolina in the manner described the Railway represents as being the real expense of conducting its railway operations in North Carolina. The aggregate amount of such expenses are shown to be substantially less than amounts previously reported by the railway under oath as having the same significance and application.

Save for expense representing maintenance of cars and locomotives the amounts assigned to North Carolina are those occasioned by operations conducted over the whole of the respective branches serving North Carolina, and the North Carolina proportion is averaged over the road mileage comprised in each branch. The equipment maintenance expense (save for less than one half of 1 per cent) is averaged over the locomotive ton-miles and car-miles for the entire system.

7. The defendant Railway admits on brief and by testimony of a witness (Conrad) that the business of the Railway is unitary in character, and that for the entire system all of the component factors of effort and expense, such as the maintenance of way, of equipment, transportation and the like may be deemed to unite in accomplishing the carriage of particular shipments, and that car-

riage of shipments in intrastate and interstate commerce is the service which the railway sells and from which it derived its net railway operating income. The Railway's admission in this respect comports with the contentions of the plaintiff.

8. In contradiction and disregard of its admission respecting the unitary character of its business defendant Railway seeks to prove its allegation of unconstitutional operation of the statutes by methods whose virtue depend wholly upon the impropriety of its admission that its business is unitary. The Railway's proof consists of a localization of operating expense to the branch lines by a system of apportionments as found above, which do not conform to the methods and bases of apportionments by which it assigned gross revenue to the State. The Railway shows that the ratio which the expense the State bears to the gross revenue assigned to the State is greater than the system operating ratio used by the statutory formula in determining taxable income. It therefore claims that the use of the system ratio in the statutory formula is wrong because it produces an expense factor which is less than the amount of real expense attributable by the Railway to the State. The Railway then proceeds to develop net income by substituting for the statutory factored expense its real expense, all other elements employed by the statutory formula remaining undisturbed. By this process the Railway arrives at a deficit instead of net operating income for each of the years in issue. The Railway maintains that it has thus proved its case.

9. It is conclusively shown that the revenue producing effect of the railway operating expense which the Railway localizes to the State is not confined to the State, but in untraceable and undeterminable degree is attributable to shipments moving out of or into the State in interstate

commerce. It is conclusively shown that the expenses producing revenue locally within the State are not wholly incurred within or assigned to the State. These are facts admitted by both parties.

10. It is conclusively shown that the manner in which gross revenue from interstate commerce touching North Carolina in its movement is apportioned to the State is not consistent and compatible with the manner in which the expense which earned it is assigned to the State.

11. It is conclusively shown that net railway operating income, properly constituted and factual in character, is the gross proceeds derived from railway operations less the actual costs and expenses of which they are the product.

12. It is conclusively shown that the necessary congruity and compatibility does not exist between the expense assigned by the Railway to the State, and the gross revenue assigned to the State by direct allocation of intrastate revenue and an average mileage prorate of interstate revenue which warrants considering the difference as net railway operating income earned in the State if it be a credit, or net railway operating deficit suffered in the State if it be a debit. It is conclusively shown that this is true because the Railway's business is in fact unitary in its character and that it is found that operations, expenses and revenues within North Carolina cannot be separated and divorced in their completeness and separateness from the operations, expenses, and earnings of the railway system as a whole.

13. It is conclusively shown that the Railway seeks to prove the alleged error in results produced by the statutory formula by using as a yardstick a partial, as well as the complete, result of another formula of its own devising which in all of its characteristics is similar to that of the statutory formula save in the particular of

the Railway operating expense factor, and that recognizing the unitary character of the Railway's business which is admitted, the amount of operating expense which the Railway incorporates as a factor in its formula is not shown to be the expense which produced the amount of gross revenue which the Railway incorporates as the gross revenue factor in its formula. It follows therefore, and is so found, that the Railway's method of proof is defective and not conclusive and fails to accomplish its purpose.

14. It is conclusively established by weight of evidence that when gross revenues assigned to the State on the basis employed equated to a factual basis respecting as nearly as may be the difference in levels of rates attaching to the several kinds of traffic when moving over the branch lines, and also over the sections thereof lying in North Carolina, that such amounts of gross revenue are substantially increased. It is found, moreover, that unless equations are made so as to bring gross revenues into a factual basis as nearly as may be, so as to be harmonious and compatible with the basis used for finding expenses reputed to have produced them, that the difference between revenue and expense cannot be said to fairly represent the net results of operations in the State.

15. Consolidating gross revenue on an equated factual basis, the factual expense as determined by the Railway, and all other pertinent items going to make up operating income, the showing is conclusive that the factual net income thus shown to have been earned by the Railway in North Carolina is substantially greater in amount than the taxable net income produced by application of the statutory formula to the Railway's case for each of the years 1927, 1928, and 1929, and discredit the showing of operating deficits produced by the operations of the Railway's testing formula.

16. The admission of the Railway agreeably to the contentions of the State that its business is unitary in character as it has been proven to be, and the weight of the evidence as adduced in the case, lead dto the inevitable conclusion that the Railway's business does indeed come under the unit rule as a matter of fact and of law, and that the application of the formula for determining taxable income which is contained in the North Carolina statutes, wherein the State is accredited with gross income on an actual basis in so far as it may be done, and on an average basis respecting the locale of miles of haul of each shipment to the extent that direct allocation is impossible, produces a fair and reasonable approximation of the Railway's earnings within the State, which is established to be such by competent evidence of record. Such a formula has the virtue of consistency, in that it treats the respective factors comprised in net income on harmonious and compatible bases which must operate to produce the qualities of congruity and consistency in the Railway's results.

17. It is conclusively shown that the use of the system operating ratio (which is the ratio of system operating expenses to system operating gross revenues) as prescribed by the statutory formula as an integral, interdependent, and indispensable part of such formula, and the application of said formula in the Railway's case for the years here involved, has not worked an effect which has been shown to be confiscatory of the Railway's property, or in contravention of its rights and protections under the provisions of the State or Federal Constitution.

18. The operation of the statutes upon the defendant Railway did not produce any unconstitutional results and did not deny to it the protection of the law, imposed no unconstitutional burden upon interstate commerce, and

did no violence to any clause of the State or Federal Constitutions.

19. The defendant Railway is not entitled to recover the taxes paid by it, or the interest thereupon, or any part thereof.

Respectfully submitted.

DENNIS G. BRUMMITT,
Attorney General,
A. A. F. SEAWELL,
Assistant Attorney General.

The defendant filed with the Referee, J. Crawford Biggs, Esq., the following requests for findings of fact and conclusions of law:

REQUEST FOR FINDINGS OF FACTS

Norfolk and Western Railway Company requests the Referee to find the following facts:

A

The gross operating revenues of the Railway Company within the State of North Carolina, including the equal mileage proportion within the State of its interstate business, ascertained by the method prescribed in the statute, are as follows (Substitute Vaughan Exhibit B):

For 1927	$1,579,850.54
For 1928	1,437,861.41
For 1929	1,410,818.36

These figures of Gross Operating Revenue are substituted for and will be adopted instead of the gross revenue figures originally ascertained by approximate method and originally accepted by the Commissioner of Revenue in making reassessment of tax.

B

The expense of conducting that part of its business which is done in North Carolina is substantially greater in proportion to the gross operating revenues of the Railway Company in the State than the system ratio of Operating Expenses to Operating Revenues in the years in question, by admission of the State's sole witness Roberts (Roberts' testimony, pages 45, 57, 72 and 103), and because of the following facts which are hereby found:

TRAFFIC DENSITY

1. Norfolk and Western Railway Company operates a double track main line railway from Tidewater on Hampton Roads at Norfolk, Virginia, westerly across the southern portion of the State of Virginia, and through the mining regions of Virginia and West Virginia to western termini at Cincinnati and Columbus, Ohio. Various single track branch lines diverge the main line, including three branches which enter the State of North Carolina; a branch from Lynchburg, Virginia, southward to Durham, North Carolina; a branch from Roanoke, Virginia, to Winston-Salem, North Carolina; and a branch from Abingdon, Virginia, to Elkland, North Carolina: Conrad, Answer 2.

2. The principal commodity carried by the Railway is bituminous coal originated on and near its main line in West Virginia and Virginia; 42,000,000 of the 59,000,000 tons of revenue freight carried by the Railway Company in 1929 was coal originated on its lines, of which coal 79% was moved over its main line to its western termini and Tidewater, without touching its branch lines. The traffic proportions were relatively the same in 1927-1928: Conrad, Ans. 5.

3. In 1927 density of traffic measured in ton miles per mile of road was as follows: In Ohio the density was 17 times the density of North Carolina; in West Virginia the density was 10 times the density of North Carolina; in Virginia the density was 4 times the density of North Carolina. The density of the system as a whole was seven times the density of North Carolina: Conrad, Ans. 6; Vaughan, Recalled Ans. 7-8.

Another index of traffic density is the fact that during the years 1927-1929 the gross revenues per mile of road on the system were from 4½ to 5 times greater than the gross revenues per mile of road in the State. (Vaughan Recalled, Ans. 7, Substitute Exhibit A.) Coal traffic constitutes over 80% of the system revenue ton miles and about 50% of the Carolina revenue ton miles (Conrad Exhibit 3).

4. For operating purposes the lines of the Railway Company are divided into operating districts for which operating statistics are separately kept so far as may be. The Durham Branch from Lynchburg to Durham is a separate operating district. The branch from Roanoke to Winston-Salem is another separate operating district, and a third operating district is the Pulaski District, from Walton, Virginia, to Bristol, Virginia-Tennessee, from which at Abingdon, Virginia, springs the third branch, the Abingdon Branch of the Railway Company, entering North Carolina and going to Elkland, North Carolina. The density of traffic in 1929 of these operating districts compared with the density of traffic on the system as a whole measured in ton miles per mile of road is as follows:

Durham District____634,000 ton miles per mile of road;
Pulaski District____769,000 ton miles per mile of road;
Winston-Salem
District_____2,228,000 ton miles per mile of road;
and System_____7,937,000 ton miles per mile of road.

Other years in question are in proportion in this respect: Conrad, Ans. 7.

5. By comparison of the main line traffic only with the traffic of the Durham and Winston-Salem Districts the disparity is greater: in a twelve-day test period (the first Thursdays of each month) in 1929 the main line east from Iaeger, West Virginia, in the coal fields to Norfolk shows a density of seven times the density of the Winston-Salem District and thirty times the density of the Durham District. The main line west from Bluefield, West Virginia, to Columbus, Ohio, shows a density of eighteen times the density of the Winston-Salem District and seventy times the density of the Durham District: Conrad, Ans. 8-9.

ACCOUNTING

6. The Norfolk and Western Railway Company is required by Federal statute to classify and keep its accounts of revenues and expenses in manner and form prescribed by the Interstate Commerce Commission. In its order of 1914 the Commission prescribes classification of operating expenses under main heads of general accounts, which are in turn subdivided into primary accounts. Of the general accounts of expense the ones of principal importance are Maintenance of Way and Structures, Maintenance of Equipment, Traffic and Conducting Transportation. Other general accounts, such as those relating to Miscellaneous Operations and General

Expense and the like, are inconsiderable and may be disregarded. The relative importance of these principal accounts may be gauged as follows: Of total Railway operating expenses, the expense of Maintenance of Way and Structures was in 1927 22.54%, Maintenance of Equipment was 30.51% of total operating expenses, Traffic was 01.92% of total operating expenses and Transportation was 41.59% of total operating expenses. The three principal accounts of Maintenance of Way and Structures, Maintenance of Equipment and Transportation, to which the studies of the Railway Company in the present case are principally directed, account for 94.64% of total operating expenses on the system: Vaughan, Exhibit A.

7. The Railway Company, by examination and study of each of the primary accounts of expense, has attributed to the Winston and the Durham Districts either the exact amount of expense actually incurred on those districts, where that was possible, or has allocated to the district its proportion of the system expense measured by freight car mileage or engine ton mileage: Vaughan, Exhibit J, Ans. 12. Of said three general accounts of expense, in the year 1927, 99.75% of Maintenance of Way expense was directly assigned to the Winston-Salem and Durham Districts, on which the money was actually spent. Of the expense of Maintenance of Equipment .49 of 1% was directly assigned to those districts, the remainder having been allocated in the proportion of freight car miles and engine ton miles of the system as compared with the districts. Of expenses under the general account of Conducting Transportation, 96.08% has been definitely assigned to said two districts where the expense was actually incurred: Vaughan, Ans. 10.

8. The Winston-Salem District and the Durham District being separate operating districts for which separate

operating statistics are available, the total operating expenses of those districts is divided by the Railway Company between the states of Viriginia and North Carolina in the proportion of road mileage in each state, the branches being homogeneous in physical characteristics, in operation and in traffic: Conrad, Ans. 18; Vaughan, Ans. 14. The Abingdon Branch being but a relatively unimportant part of the Pulaski operating district, the Superintendent of the District made particular study to assign expenses attributable to the Abingdon Branch operation, which branch expenses were divided between Virginia and North Carolina in the proportion of road mileage and train operation in the two states: Vaughan Exhibits C and K; Vaughan Ans. 17.

9. Expenses so ascertained as having been actually expended on the branches or allocated thereto and divided between the states through which the branches run on a mileage basis attributable to North Carolina operation, amount in the year 1927 to $1,520,935.32, in the year 1928 to $1,455,623.74 and in the year 1929 to $1,444,704.56. For the years 1928 and 1929, these figures, even excluding taxes, are in excess of the North Carolina gross revenues ascertained in the method prescribed by the statute, and for the year 1927, including taxes, are in excess of such revenues. Vaughan Substitute Exhibit B; Vaughan Recalled, Ans. 4-5.

OPERATING

The reason why the ratio between the expense attributable to North Carolina operation and North Carolina gross revenues is greater than the ratio between system revenues and system expenses is to be found in certain operating facts as follows:

10. The expense of Maintenance of Way and Structures does not vary relatively with user of a railroad: 55% of such maintenance does not vary at all with user. The actual expense of maintaining Way and Structures on the Winston-Salem and Durham Branches in North Carolina for 1927 is $347,524.00; Conrad, Ans. 9. (Substitute Conrad Exhibit 7:) If the method adopted by the State is used a figure of $223,706.00 results from taking the percentage of system Maintenance costs to total system Revenue, which percentage is 14.16% (substitute Conrad Exhibit 7), and applying that percentage to North Carolina Gross Revenues. The difference between these figures of $123,817.00 is the difference between the money actually spent in Maintenance on the branches and the application of the State's theory of finding a figure to represent such Expenses on the basis of the system ratio.

11. Transportation expenses do not vary proportionately with traffic. Thus enginehouse expenses are lower per engine unit handled as the number of engines handled increases. So, also, train dispatching and telegraph expenses are lower per unit on double track main line because the effort and the expense of the employees is spread over a larger number of train units and because automatic block signal devices lower the service cost per train unit: Conrad, Ans. 10.

12. The grades on the North Carolina branches are more numerous and greater than the main line grades. As a result, on the Winston-Salem Branch a large Mallet locomotive hauls a maximum of 2,000 tons of freight as compared with a haul of 7,800 to 10,100 tons of freight for the same class of engine on the main line; on the Durham District a small Mallet locomotive hauls a maximum of 1,500 tons of freight as contrasted with the 7,500 tons that a locomotive of the same size handles

on the Norfolk District: Conrad, Ans. 11. Engines of the same size haul from three to five times more tonnage on the main line than on the North Carolina Branches. Or, put in other statistical form, each ton of locomotive weight hauls on the Durham Branch 4.93 gross tons, on the Winston-Salem Branch each ton of locomotive hauls 5.5 gross tons, and on the system each ton of locomotive hauls 12.54 gross tons: Conrad, Ans. 12. Coal consumption per 1,000 gross ton miles is on Durham Branch 312.7 pounds, on Winston-Salem Branch 307.1 pounds, and on system 135.1 pounds: Conrad, Ans. 13. The system as a whole on the average hauls 2½ times as much tonnage per train as on the North Carolina districts and with 3/7s of the fuel consumption on those districts. (Conrad Ans. 12.)

13. Because of operating conditions mentioned and lighter traffic and tonnage, the cost of wages of enginemen and trainmen and the cost of fuel per 1,000 gross ton miles is as follows: Winston-Salem Branch 64½ cents, system 25.84 cents. Wages of trainmen and enginemen and cost of fuel are alone about 40% of the total system expense of conducting transportation (Vaughan, Ans. 3a) and on the Carolina branches these costs alone are about 2½ times greater than the average of such costs for the system. If this factor of cost had been the same on the Winston-Salem Branch as on the system, wages and fuel would have cost $256,000.00 less in the year 1929: Conrad, Ans. 13.

14. The cost of Maintenance of Equipment, that is both locomotives and cars, is relatively higher on the North Carolina Branches because more engines and more cars are, due to grades and lighter loading of cars, required to haul the same amount of freight than on the system. Particularly the cost of locomotive maintenance is higher because the revenue train load is

lighter; and the cost of maintaining freight cars is higher because the car loading is lighter. Thus, the average loading of coal per car on the system is 60.7 tons and on the North Carolina Branches is 52.6 tons. The average loading of other merchandise per car on the system is 27.6 tons and on the North Carolina Branches 22.6 tons: Conrad, Ans. 14-15.

15. While the average revenue per net ton mile is 1½ times greater in North Carolina than on the system as a whole, this is explained by the fact that coal is about 80% of the system tonnage as compared with about 50% of the North Carolina tonnage. But revenue per car mile in North Carolina for freight other than coal, 30.51 cents, is less than the corresponding system car mile revenue of 35.05 cents because of heavier car loading. Assuming that an empty freight car weighs about 21 tons, the merchandise revenue per gross ton mile is in North Carloina .69 of a cent as compared with system .72 of a cent. On the system there is hauled 2.6 times more merchandise (other than coal) per mile of road than in North Carolina. As to coal, the average revenue per car mile is in North Carolina 26.3 cents and on the system 31.56 cents. In short on all freight traffic the Railway's revenue per gross ton mile (weight of car and contents) is greater than in North Carolina, and yet on the system it hauls said traffic at less cost than it does in North Carolina: Conrad, Ans. 16.

16. The traffic on the Abingdon Branch is relatively inconsiderable. A study made in August, 1930, shows that freight car miles per mile of road on the Abingdon Branch was 15.6 as compared with the system of 717.5. A traffic comparison for the years in question in this suit, 1927-1929, would show substantially the same relation: Conrad, Ans. 19.

17. Passenger revenues per train mile on the system are for the same expenditure about twice the revenues per train mile in North Carolina and passengers per train mile on the system are about three times the passengers per train mile in North Carolina: Conrad, Ans. 20.

C

CAR HIRE (Conrad, Ans. 22)

The freight cars of the Norfolk and Western Railway Company move off line on to the rails of connecting railroads; similarly cars of those railroads move over the rails of the Norfolk and Western. Because the Norfolk and Western is principally an originating carrier of coal traffic in large volume, it is equipped with coal cars in excess of the theoretical legal necessity of providing cars for traffic only over its own line. Of 46,806 freight cars owned by the Railway Company, 37,289 are coal cars. About 70% of the coal moving over the Norfolk and Western rails goes beyond its western termini at Cincinnati and Columbus. Under the rules of American Railway Association the railroad owning a car receives $1.00 per day from the railroad on whose line the car may be. For Norfolk and Western cars on foreign rails, the Norfolk and Western receives from the railroad in possession the $1.00 per diem and pays to the foreign railroad owner $1.00 per diem for cars of foreign ownership while on Norfolk and Western rails. Principally because of relative over-equipment of coal cars and origination of coal traffic, the car hire balance is ordinarily in favor of the Norfolk and Western.

Car hire balances may be studied with reference to territorial sources. For the purpose of computing car hire, the country is divided into three major districts, the

Eastern District, which generally embraces railroads in the territory east of the Mississippi and north of the Ohio and Potomac Rivers, the Southern District, which embraces railroads in the territory east of the Mississippi and south of the Ohio and Potomac Rivers, and the Western District, which embraces railroads west of Chicago and the Mississippi River. Computed by districts, it appears that the Norfolk and Western receives all of its car hire balance from railroads in the Eastern and Western Districts, none of which railroads enter North Carolina. Car hire received from railroads in the Eastern District is about 70% of all car hire received; about 70% of the tonnage of the Norfolk and Western leaves its lines in Ohio. The indications are that none of the Railways' car hire credit balance is attributable to North Carolina in any of the tax years in suit: Conrad Exhibit 13.

The total car hire balance in favor of this Railway Company has, for the purpose of making the original return of the Railway Company to the Commissioner of Revenue, been dealt with as follows: To each operating district of the Railway Company has been allotted a part of the car hire balance proportional to the freight car mileage of the district. And of the car hire credit balance so allotted to the districts entering North Carolina a mileage apportionment of those districts has been attributed to the State. The amount so allotted to North Carolina of the annual car hire credit balance amounts each year to about $100,000.00 less than the amount attributed to the State by the statutory prorate on the basis of road mileage. Vaughan, Ans. 6, 18, Exhibit D, and Commissioner's Reassessment.

D.

RATE LEVEL

The assertion that the rates on the Railway's Carolina branches are on a higher level than on other portions of the system is an unprovable generalization, nor can it be said that the Railway's revenue yield from the haul or portion thereof on said branches is relatively greater than on other portions of the system.

1. Considered first from the standpoint of rate level alone, the said assertion concerning said level is unprovable:

(a) Because the rate systems are different in the different rate territories, as for example:

In Southern Classification territory the class rates are comparatively high. But in that territory very little carload freight and not all less-than-carload freight moves on these class rates; the bulk of the carload freight and a large part of the less-than-carload freight in that territory moving on comparatively low commodity rates which have been provided in great numbers by the Southern carriers for substantially all articles that move in large volume. Many of these commodity rates are on as low a level or lower than the level of class or commodity rates applicable on the same article in Official territory. The I. C. C. (100 I. C. C. 513, 533) estimates that only 16.5% of the revenue of Southern carriers is from class rate traffic.

In Official territory, the system of rate making is just the opposite. There class rates are used for movement of a large volume of freight on which commodity rates would be used in the South, and commodity rates are not so frequent as in the South.

Keeley, Ans. 7 and 8, quoting p. 8 from 164, I. C. C. 314.

Keeley, Ans. 10, p. 15-17; Ans. 19, p. 35 et seq.

(b) Because the classification ratings in the two territories vary widely. A particular article may be assigned to first class in one territory, and to second, third or fourth class in the other. The relations of the classes differ in the two territories, sixth class (for example) in one being 40% of first class and 27½% in the other. (Keeley, A. 7.)

(c) By selecting certain traffic originating in one territory and going in a given direction, one conclusion (as to rate levels) can be justified—but just the opposite conclusion (as to such levels) would be drawn by selecting other traffic originating in another territory and going in another direction, as exemplified by the contrast of the C. F. A. origin traffic selected by Roberts (Exhibits R. 9 and 10) with the Trunk Line origin traffic selected by Keeley (Exhibit 3) and the northbound Carolina traffic used by Keeley in his Exhibits 10-14, inclusive.

(d) North Carolina intrastate class rates were until 1930 lower than the interstate rates from Virginia points to Southern territory (Keeley, p. 24) and lower than Virginia intrastate class rates (Keeley, pp. 34-35, Exhibit 8); and intrastate rates generally (both class and commodity) on the Carolina portion of Winston and Durham branches are lower than intrastate rates on the Virginia portion thereof (Keeley, p. 33, Exhibit 7).

FOOTNOTE: Since oral argument in Raleigh April 20th, we have received copy of a decision by the Interstate Commerce Commission April 10, 1933, in Investigation and Suspension Docket No. 3660, "Rates on Bristol and Norton Lines of Norfolk and Western Railway," wherein the Commission among other things was considering the relative levels of class rates in Official Classification territory as contrasted with such levels in Southern Classification territory.

2. Considered from the standpoint of both rate level and revenue yield, the general level of class rates in Southern Classification territory is commonly thought to be higher than that in Official territory, but as aforesaid the revenue from all class rate traffic in Southern territory and between Southern and Official territories is only one-sixth of the total carrier revenue from freight traffic. And by no means all of the class rates in Southern territory are higher than those on the same articles in Official territory. Commodity rates move the bulk of the traffic in Southern territory and between Southern and Official territory, and the Railway's revenue from the Carolina branch haul of commodity rated traffic (particularly northbound) is relatively less or not higher than its revenue from the haul of such traffic on the main line or north thereof.

Innumerable instances can be cited in support of the foregoing statement. Some of them are:

(a) Manufactured tobacco, cotton and knitting factory products, forest products and furniture are the four most important productions in North Carolina and constitute ten-thirteenths of the value of the principal products of the industries of North Carolina (Keeley, Exhibit

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As the report of the decision is not yet available in book form, we take the liberty of herewith quoting from Sheet 9 of the Commission's mimeographed report of April 10, 1933, its following comments on said relative levels of class rates:

"The marked difference between the class-rate structure in official territory and the class-rate structures within Southern territory and between the two territories presents an exceedingly troublesome and difficult rate problem. * * *

"As we have found, class rates in the two territories perform to a considerable extent different functions. In Official territory they have been applied to the movement of carload traffic in volume to a much greater degree than in the South. On the other hand, commodity rates in the South are often on a relatively lower level in comparison with class rates, and sometimes on an absolutely lower level than they are in the North. It is these facts which have made any attempt at harmonizing the class-rate structures of the two territories so difficult. * * *"

9). All of these move on commodity rates and the Railway's revenue from the branch haul thereof is relatively lower than from the haul on the main line or north thereof (Keeley, pp. 35-42, Exhibits 10-14, inclusive).

(b) Class rates from various Trunk Line and New England territory origins to Winston-Salem are relatively lower than the class rates from the same origins to Roanoke (Keeley, Exhibit 3, A. 10, p. 15-17), and the revenue from the branch portion of the haul is relatively lower than from the portion of the haul on the main line or north thereof.

(c) The class rates covered by the K-2 scale applied to Official territory, described in Keeley's A. 13, p. 21-23, are not higher in Southern than in Official territory, and the revenue from the branch portion of the haul is not higher than on the main line and north thereof.

(d) Plaster rates are relatively lower on the Carolina branches than on the main line and the revenues from the branch portion of the haul are relatively lower than the main line portion (Keeley, 26).

(e) The revenues from the commodity rates on Keeley, Exhibit 6 are relatively lower for the branch haul than for the main line haul or for the portion of the haul on the main line (Keeley, 27-28).

(f) The Carolina intrastate class rates and commodity rates on the branches are lower than the Virginia intrastate class and commodity rates on the branches and the revenue from the Carolina intrastate hauls is relatively lower than the revenue from the Virginia intrastate hauls (Keeley, p. 33, Exhibit 7).

3. The freight rates on the Railway's North Carolina branches are not made to respect the higher operating costs on those branches:

(a) These branches all lie in Southern Classification territory with, and have the same level of rates as, the competing main lines of the Southern, Seaboard, Atlantic Coast Line and Norfolk Southern Railways, and these competing main lines and the rates thereon are the principal factors that fix the branch rates. Other influences were the "long and short haul" clause of the Fourth Section of the I. C. C. Act and the various horizontal rate advances in the respective rate territories (Keeley, A. 5).

(b) Many instances can be presented and numerous instances are presented by witness Keeley showing that the rates for the branch haul were relatively lower than, or not higher than, the rates for the haul on the main line or north thereof, among which are:

Keeley, Ex. 3, Pages 15-17—Various class rates from Trunk line and New England territory points relatively lower to Winston-Salem than to points on main line and north thereof.
Keeley, Pages 25-26—Cement and lime rates uniform.
Keeley, Page 26—Plaster rates on Carolina branches relatively lower than on main line.
Keeley, Ex. 6, Page 27—Various commodity rates (stone and lumber particularly) lower on Carolina branches than on main line.
Keeley, Ex. 7, Page 33—Carolina intrastate rates on branches lower than Virginia intrastate rates thereon.
Keeley, Ex. 10, Pages 36-38—Manufactured tobacco rate relatively lower on Carolina branches than north thereof.
Keeley, Ex. 11, Pages 38-39—Cotton and knitting product rates generally relatively lower on Carolina branches than north thereof.
Keeley, Ex. 12 and 13, Pages 39-41—Forest products rates relatively lower on Carolina branches than north thereof.
Keeley, Ex. 14, Pages 41-42—Furniture rates relatively lower on Carolina branches than north thereof.

The last four items alone constitute ten-thirteenths of the value of the principal products of the industries in North Carolina as reflected by Keeley, Exhibit 9.

4. Even if the level of the rates on the North Carolina branches were higher than that on the main line and north thereof, this does not mean the revenue received by the Railway for the branch portion of the haul is

greater than for the portion of the haul on the main line and north thereof. On the contrary, by reason of the divisions the Railway is compelled to make with connecting carriers, the branch portion of the revenue is generally less than the main line portion thereof.

(a) About 75% of the Railway's business over the Carolina branches is received from and/or destined to connecting lines, to whom it has to concede heavy divisions (Keeley, A. 6, 11, 16, Exhibits 2 and 4).

(b) Coal alone constitutes about half of the Railway's North Carolina business, but as shown by Keeley, A. 9 and Exhibit 2, its North Carolina revenue therefrom is less per ton than the revenue per ton on the main line.

(c) The divisional situation with respect to coal obtains with respect to merchandise other than coal (Keeley, A. 11, 16).

5. Even if the rates on the Carolina branches were on a higher level generally than on the main line, it does not follow that the Railway's revenue from its branch hauls is, even in the absence of divisions with connecting carriers, greater than its revenues from its haul of the same articles on the main line or north thereof, because the actual traffic hauled may move on rates, the branch portions of which are lower or not higher than on the portion of the railway north thereof; and hence innumerable instances can be cited in which the revenue from the branch haul is less than the haul on the main line or north thereof. For example, see the illustrations referred to under sub-division D, 2, second paragraph *supra*.

III

CONCLUSIONS OF LAW

The Referee concludes from the facts found in the present record,

EITHER

that Section 312 of the Revenue Acts of 1927 and 1929 is to be construed in order to avoid fatal constitutional objection as giving the Commissioner of Revenue discretion to ascertain Railway net operating income in North Carolina otherwise than by application to North Carolina gross revenues of the system ratio of expenses to earnings. The formula calling for use and application of the system ratio is not exclusive. Net Railway income if any within the State of North Carolina may be ascertained from gross operating revenues within the State by deduction of expenses of operation within the State of North Carolina from which the North Carolina gross revenues are derived—

OR

Section 312 of the North Carolina Revenue Acts of 1927 and 1929 construed to prescribe ascertainment of Railway net income within the State by reference solely to the system ratio of operating expenses to earnings produces unconstitutional result as applied to the Norfolk and Western Railway Company upon showing that the system ratio is substantially less than the ratio of North Carolina expenses to North Carolina earnings of the Railway Company.

Allotment by the statute of car hire credit balance on the basis of equal road mileage proportion within and outside of the State produces unconstitutional result as

applied to Norfolk and Western Railway Company upon showing that car hire credits come exclusively from railroads in the Eastern and Western Districts of the United States, none of which enter North Carolina, and that Norfolk and Western Railway Company actually has debit balance with railroads in the Southern District, which includes North Carolina; or if car hire be regarded as part of the cost of providing rolling stock for a railroad, then the State of North Carolina is entitled to no more of the system car hire credit balance than is represented by the proportionate user of cars on the North Carolina branches.

BURTON CRAIGE
MURRAY ALLEN
W. W. COXE
F. M. RIVINUS
THEODORE W. REATH
Counsel for Norfolk and Western Railway Company
May 15, 1933.

On February 2, 1934, J. Crawford Biggs, Esq., Referee, filed in the office of the Clerk of the Superior Court of Wake County his report as follows:

REPORT OF REFEREE

In The
Superior Court of Wake County, North Carolina

The State of North Carolina on the Relation of
A. J. Maxwell, Commissioner of Revenue
v.
Norfolk and Western Railway Company

The Railway Company, pursuant to Section 312 of the Revenue Act of 1927 and Section 312 of the Reve-

'nue Act of 1929 (which sections are substantially identical), made returns to the Commissioner of Internal Revenue of the State for the years 1927, 1928 and 1929. The returns showed no taxable income. Thereafter, on October 27, 1930, the Commissioner of Internal Revenue made reassessments against the Railway Company, accepting and adopting the amount of gross operating revenue within the State, as shown in the original returns of the Railway Company, but deducted therefrom a sum to represent operating expenses measured by the operating ratio of the Railway Company for business of its entire system within and without the State. By the application of the system operat[illegible], the Commissioner of Revenue arrived at a net income within the State and made demand upon the Railway Company for the payment of corporate income tax upon the basis of such net income, ascertained by him. The amounts so demanded were paid under protest as follows:

For the year 1927		
as tax on alleged income	$25,737.70	
Plus Interest	3,989.34	$29,727.04
For the year 1928	25,097.32	
Plus Interest	2,384.25	27,481.57
For the year 1929	28,225.22	
Plus Interest	987.88	29,213.10
		$86,421.71

The protest was overruled after a hearing by the Commissioner and the Railway Company appealed to the Superior Court of Wake County, as provided by statute, demanding the recovery of the amounts so paid under

protest, as illegally assessed. The case was referred to the undersigned as Referee. Hearings were held from time to time and evidence introduced by both parties, and a transcript of all the evidence is hereto attached. After the evidence was concluded, the case was fully argued orally and time was given each side to file briefs. The Railway Company filed its main brief, the State its brief and the Railway Company filed a reply brief. Both sides requested in writing specific findings of fact. The copies of the brief and requested findings are filed herewith.

Section 312 of North Carolina Revenue Act, 1927, (and the same numbered section of the Revenue Act of 1929, which is in substantially the same words) prescribe the method of ascertaining the "net revenue" for income tax of railroads which operate within and outside the State, as follows:

"Sec. 312. Railroads and public-service corporation.

"The basis of ascertaining the net income of every corporation engaged in the business of operating a steam or electric railroad express service, telephone or telegraph business, or other form of public service, when such company is required to keep records according to the standard classification of accounting of the Interstate Commerce Commission, shall be the 'net operating income' of such corporation as shown by their records kept in accordance with that standard classification of accounts, when their business is wholly within this State, and when their business is in part within and in part without the State their net income within this State shall be ascertained by taking their gross 'operating revenues' within this State, including in their gross 'operating revenues' within this State the equal mileage proportion within this State of their interstate business and deducting from their gross

'operating revenues' the proportionate average of 'operating expenses' or 'operating ratio,' for their whole business, as shown by the Interstate Commerce Commission standard classification of accounts. From the net operating income thus ascertained shall be deducted 'uncollectible revenue,' and taxes paid in this State for the income year, other than income taxes and the balance shall be deemed to be their net income taxable under this act. That in determining the taxable income of a corporation engaged in the business of operating a railroad under this section, in the case of a railroad located entirely within this State, the net operating income shall be increased or decreased to the extent of any credit or debit balance received or paid, as the case may be, on account of car or locomotive hire; and when any railroad is located partly within and partly without this State, then said net operating income shall be increased or decreased to the extent of an equal mileage proportion within this State of any credit or debit balance received or paid, as the case may be, on account of car or locomotive hire."

FINDINGS OF FACT

No. 1

The Railway Company ascertained the gross intrastate revenues and to these added the equal mileage proportion within the State of the interstate business, in accordance with the formula prescribed by the statute as follows:

For 1927	$1,579,850.54
For 1928	1,437,861.41
For 1929	1,410,818.36

The figures are not those which were included in the Railway Company's original returns. The State's Expert

Roberts in his testimony pointed out that the Railway Company had not followed the statutory method in arriving at its gross operating revenue and at the hearing before the Referee the Railway Company conceded that the criticism of the State in this respect was correct, and it accordingly filed revised figures substantially larger than those it originally returned, and which are those set forth above. It was conceded by the State on the hearing that those figures correctly represent gross operating revenues of the Railway Company ascertained by using the statutory method.

No. 2

I find that the expense of conducting that part of its business which is done in North Carolina is substantially greater in proportion to the gross operating revenues of the Railway Company in the State than the system ratio of Operating Expenses to Operating Revenues in the years in question.

No. 3

The Railway Company operates a double track main line railway from Tidewater on Hampton Roads at Norfolk, Virginia, westerly across the southern portion of the State of Virginia, and through the mining regions of Virginia and West Virginia to western termini at Cincinnati and Columbus, Ohio. Various single track branch lines diverge from the main line, including three branches which enter the State of North Carolina; a branch from Lynchburg, Virginia, southward to Durham, North Carolina; a branch from Roanoke, Virginia, to Winston-Salem, North Carolina; and a branch from Abingdon, Virginia, to Elkland, North Carolina; Conrad, Answer 2.

No. 4

The principal commodity carried by the Railway Company is bituminous coal originated on and near its main line in West Virginia and Virginia; 42,000,000 of the 59,000,000 tons of revenue freight carried by the Railway Company in 1929 was coal originated on its lines, of which coal 79% was moved over its main line to its western termini and Tidewater, without touching its branch lines. The traffic proportions were relatively the same in 1927-1928; Conrad, Ans. 5.

No. 5

In 1927 density of traffic measured in ton miles per mile of road was as follows: In Ohio the density was 17 times the density of North Carolina; in West Virginia the density was ten times the density of North Carolina; in Virginia the density was four times the density of North Carolina. The density of the system as a whole was seven times the density of North Carolina: Conrad, Ans. 6, Vaughan, Recalled Ans. 7-8. During the years 1927-1929 the gross revenues per mile of road on the system were from 4½ to 5 times greater than the gross revenues per mile of road in the State. (Vaughan Recalled, Ans. 7, Substitute Exhibit A.) Coal traffic constitutes over 80% of the system revenue ton miles and about 50% of the North Carolina revenue ton miles (Conrad Exhibit 3).

No. 6

For operating purposes the lines of the Railway Company are divided into operating districts for which operating statistics are separately kept so far as may be. The Durham Branch from Lynchburg to Durham is a sepa-

rate operating district. The branch from Roanoke to Winston-Salem is another separate operating district, and a third operating district is the Pulaski District, from Walton, Virginia, to Bristol, Virginia-Tennessee, from which at Abingdon, Virginia, springs the third branch, the Abingdon Branch of the Railway Company, entering North Carolina and going to Elkland, North Carolina. The density of traffic in 1929 of these operating districts compared with the density of traffic on the system as a whole measured in ton miles per mile of road is as follows:

Durham District____634,000 ton miles per mile of road;
Pulaski District_____769,000 ton miles per mile of road;
Winston-Salem District
2,228,000 ton miles per mile of road;
And System_____7,937,000 ton miles per mile of road.

Other years in question are in proportion in this respect: Conrad, Ans. 7.

No. 7

By comparison of the main line traffic only with the traffic of the Durham and Winston-Salem Districts the disparity is greater: in a twelve day test period (the first Thursdays of each month) in 1929 the main line east from Iaeger, West Virginia, in the coal fields to Norfolk shows a density of seven times the density of the Winston-Salem District and thirty times the density of the Durham District. The main line west from Bluefield, West Virginia, to Columbus, Ohio, shows a density of eighteen times the density of the Winston-Salem District and seventy times the density of the Durham District: Conrad, Ans. 8-9.

No. 8

The Railway Company is required by Federal statute to classify and keep its accounts of revenues and expenses in manner and form prescribed by the Interstate Commerce Commission. In its order of 1914 the Commission prescribes classification of operating expenses under the main heads of general accounts, which are in turn subdivided into primary accounts. Of the general accounts of expense the ones of principal importance are Maintenance of Way and Structures, Maintenance of Equipment, Traffic and Conducting Transportation. Other general accounts, such as those relating to Miscellaneous Operations and General Expense and the like, are inconsiderable. Of total Railway operating expenses, the expense of Maintenance of Way and Structures was in 1927 22.54%, Maintenance of Equipment was 30.51% of total operating expenses, Traffic was 01.92% of total operating expenses and Transportation was 41.59% of total operating expenses. The three principal accounts of Maintenance of Way and Structures Maintenance of Equipment and Transportation, to which the studies of the Railway Company in the present case are principally directed, account for 94.64% of total operating expenses on the system: Vaughan, Exhibit A.

No. 9

The Railway Company, by examination of each of the primary accounts of expense, has attributed to the Winston and the Durham Districts either the exact amount of expense actually incurred on those districts, where that was possible, or has allocated to the district its proportion of the system expense measured by freight car mileage or engine ton mileage: Vaughan, Exhibit J, Ans. 12. Of said

three general accounts of expense, in the year 1927, 99.75% of Maintenance of Way expense was assigned to the Winston-Salem and Durham Districts, on which the money was actually spent. Of the expense of Maintenance of Equipment .49 of 1% was assigned to those districts, the remainder having been allocated in the proportion of freight car miles and engine ton miles of the system as compared with the districts. Of expenses under the general account of Conducting Transportation, 96.08% has been assigned to said two districts where the expense was actually incurred: Vaughan, Ans. 10.

No. 10

The Winston-Salem District and the Durham District being separate operating districts for which separate operating statistics are available, the total operating expenses of those districts is divided by the Railway Company between the states of Virginia and North Carolina in the proportion of road mileage in each state, the branches being homogeneous in physical characteristics, in operation and in traffic: Conrad, Ans. 18; Vaughan, Ans. 14. The Abingdon Branch being but a relatively unimportant part of the Pulaski operating district, the Superintendent of the District made particular study to assign expenses attributable to the Abingdon Branch operation, which branch expenses were divided between Virginia and North Carolina in the proportion of road mileage and train operation in the two states: Vaughan Exhibits C and K; Vaughan Ans. 17.

No. 11

Expenses so ascertained as having been actually expended on the branches or allocated thereto and divided between the states through which the branches run on a

mileage basis attributable to North Carolina operation, amount in the year 1927 to $1,520,935.32, in the year 1928 to $1,455,623.74 and in the year 1929, to $1,444,-704.56. For the years 1928 and 1929, these figures, excluding taxes, are in excess of the North Carolina gross revenues ascertained in the method prescribed by the statute, and for the year 1927, including taxes, are in excess of such revenues. Vaughan Substitute Exhibit B; Vaughan Recalled, Ans. 4-5.

No. 12

The ratio between the expense attributable to North Carolina operation and North Carolina gross revenues is greater than the ratio between system revenues and system expenses, due to the following operating facts:

(1) The expense of Maintenance of Way and Structures does not vary relatively with user of a railroad: 55% of such maintenance does not vary at all with user. The actual expense of maintaining Way and Structures on the Winston-Salem and Durham Branches in North Carolina for 1927 is $347,524.00: Conrad, Ans. 9. (Substitute Conrad Exhibit 7.) If the method adopted by the State is used a figure of $223,706.00 results from taking the percentage of system Maintenance costs to total system Revenue, which percentage is 14.16% (substitute Conrad Exhibit 7), and applying that percentage to North Carolina gross Revenues.

(2) Transportation expenses do not vary proportionately with traffic. Enginehouse expenses are lower per engine unit handled as the number of engines handled increased. Train dispatching and telegraph expenses are lower per unit on double track main line because the effort and the expense of the employees is spread over a larger number of train units and because automatic block

signal devices lower the service cost per train unit: Conrad, Ans. 10.

(3) The grades on the North Carolina branches are more numerous and greater than the main line grades. As a result, on the Winston-Salem Branch a large Mallet locomotive hauls a maximum of 2,000 tons of freight as compared with a haul of 7,800 to 10,100 tons of freight for the same class of engine on the main line; on the Durham District a small Mallet locomotive hauls a maximum of 1,500 tons of freight as contrasted with the 7,500 tons that a locomotive of the same size handles on the Norfolk District: Conrad, Ans. 11. Engines of the same size haul from three to five times more tonnage on the main line than on the North Carolina Branches. Conrad, Ans. 12. Coal consumption per 1,000 gross ton miles is on Durham Branch 312.7 pounds, on Winston-Salem Branch 307.1 pounds, and on system 135.1 pounds: Conrad, Ans. 13. The system as a whole on the average hauls 2½ times as much tonnage per train as on the North Carolina districts and with 3/7s of the fuel consumption on those districts. (Conrad Ans. 12.)

(4) Because of operating conditions mentioned and lighter traffic and tonnage, the cost of wages of enginemen and trainmen and the cost of fuel per 1,000 gross ton miles is as follows: Winston-Salem Branch 64½ cents, system 25.84 cents. Wages of trainmen and enginemen and cost of fuel are alone about 40% of the total system expense of conducting transportation (Vaughan, Ans. 3a) and on the Carolina branches these costs alone are about 2½ times greater than the average of such costs for the system. If this factor of cost had been the same on the Winston-Salem Branch as on the system, wages and fuel would have cost $256,000.00 less in the year 1929. Conrad; Ans. 13.

(5) The cost of Maintenance of Equipment, that is both locomotives and cars, is relatively higher on the North Carolina Branches because more engines and more cars are, due to grades and lighter loading of cars, required to haul the same amount of freight than on the system. The average loading of coal per car on the system is 60.7 tons and on the North Carolina Branches is 52.6 tons. The average loading of other merchandise per car on the system is 27.6 tons and on the North Carolina Branches 22.6 tons: Conrad, Ans. 14-15.

(6) On the system there is hauled 2.6 times more merchandise (other than coal) per mile of road than in North Carolina. As to coal, the average revenue per car mile is in North Carolina 26.3 cents and on the system 31.56 cents. In short, on all freight traffic the Railway's revenue per gross ton mile (weight of car and contents) is greater than in North Carolina, and yet on the system it hauls said traffic at less cost than it does in North Carolina: Conrad, Ans. 16.

(7) The traffic on the Abingdon Branch is relatively inconsiderable. A study made in August, 1930, shows that freight car miles per mile of road on the Abingdon Branch was 15.6 as compared with the system of 717.5.

(8) Passenger revenues per train mile on the system are for the same expenditure about twice the revenues per train mile in North Carolina and passengers per train mile on the system are about three times the passengers per train mile in North Carolina: Conrad, Ans. 20.

CAR HIRE

In view of the foregoing findings of fact, the Referee is of the opinion that it is unnecessary to consider the Car Hire item, and besides it was admitted that the amount involved in that item was so small that it could not affect the result.

CONCLUSIONS OF LAW.

The Railway Company admits that the statute is on its face constitutional, and that the burden is upon it to show that the application of the statute, as made by the State, makes it liable to the payment of an income tax when it has no taxable income and works an unreasonable burden upon it. It is conceded by the State that if it is shown by competent evidence that the Railway Company was not liable for the income taxes for 1927, 1928 and 1929, which were paid under protest, it may recover them back. The State concedes that if the Railway Company can show that it in fact had no taxable income, then although the use of the statutory formula produced an apparent net income, the tax would be illegally imposed. But the State contends that the Railway Company has failed to carry the burden which the law places upon it.

It is conceded by both the Railway Company and the State that it is practically impossible to ascertain the gross revenue on interstate business by undertaking to arrive at the revenue attributable to the State on each interstate shipment. The State concedes that the gross income, as submitted at the hearings, correctly represents the gross income according to the statutory formula, and the Railway Company concedes that the statutory allocation of gross revenue is approximately correct.

The State contends that the actual gross operating revenue is larger than that produced by the use of the statutory formula, that the level of rates in the "Southern" territory, which embraces the branch lines running into the State is greater than the level of rates on the system, most of which is in the official territory but the State submits no data by which a finding could be made as to how much greater the "Southern" level is or how much greater the actual revenue is than the amount produced by the use of the statutory formula.

The Railway Company denies that the level of rates is higher—denies that the actual revenue is greater than the revenue produced by the use of statutory formula, but it accepts the gross revenue as acertained by the statutory formula as approximately correct. The State contends that having accepted this as correct and not attacking this part of the formula, the Railway Company is precluded from attacking the part of the statute which prescribes the method of ascertaining operating expenses, and that the Railway Company is precluded from showing that the operating expenses which the State arrived at by the system ratio are not approximately correct—that under the circumstances it will not be permitted to show that operating expenses are grossly and unreasonably small.

The State in its brief (page 11), says that the burden is upon the defendant not only to show "actual operating expenses properly attributable to North Carolina, but actual revenue reasonably attributable thereto," and on page 22 of its brief, it states that "the defendant has all along contended that it is impossible to show actual revenue in North Carolina by evidence. We think it is true."

The State takes the position that the Railway Company cannot compare allocated or averaged gross revenues arrived at by the use of the formula with actual operating expenses shown by evidence, for the purposes of finding net taxable income—that this produces a "bastard product" (p. 14). If this is a sound position, and it is impossible to show actual revenue in North Carolina by evidence, then a taxpayer is precluded from showing that the statute works an unconstitutional result. The Referee is of the opinion that this is not a sound position. The Court will assume that the gross revenue arrived at by the use of the formula is approximately cor-

rect until the contrary is shown and no evidence was offered to show that this gross revenue was not approximately correct. The Referee is of the opinion, as asserted by the State, that "the burden is upon the defendant to establish as near as it may do so, actual operating expenses in this State sufficient to absorb revenues," (State brief, p. 12), and that the Court "will go behind the statute to see whether an unconstitutional result is produced by its application, to see whether the defendant is taxed on income in North Carolina which it did not have." (State brief, p. 13.)

The Referee is of the opinion that if the Railway Company could show that the amount attributable to it as gross revenue by the use of the statutory formula of the equal mileage proportion within the State of its interstate business did not produce a result approximately correct, but was grossly and unreasonably excessive, then the statutory method must fall.

Likewise if the Railway Company could show that the method prescribed for ascertaining the operating expenses to be deducted from the gross revenue did not produce a result approximately correct but was grossly and unreasonably small, then the statutory method must fall.

The method used by the State in arriving at the operating expenses is by the application of the system ratio of expenses to gross operating revenues, and this is on the assumption that the expense of earning each dollar within the State is the same as the expense of earning each dollar over the system.

The Railway Company contends that as it has no part of its main line in the State, and has only relatively thin branch lines in the State, the system "operating ratio" does not produce anything approximately approaching "operating expenses" within the State, and therefore, the

method employed by the State may be discarded and that the language of the statute "the proportionate average of operating expenses" is not synonymous in meaning with the language "operating ratio" used in the statute, and the intent of the State is (1) to ascertain the proportionate average of operating expenses from which the revenue within the State comes, or (2) to use the system operating ratio, but as the use of the system operating ratio does not produce a result which even approximates the actual operating expenses within the State, that method cannot be applied, and that the first method may be used in ascertaining the operating expenses within the State to be deducted from gross revenues. The Railway Company further contends that if the method it employed to ascertain the operating expenses is not authorized by the terms of the statute, that the statute is unconstitutional in that it has shown that the statutory method of system operating ratio used by the State produces a figure which is not approximately correct, and the Railway Company contends that it has shown the actual expenses within the State with approximate accuracy. The State has no right to collect an income tax unless authorized by statute, and in ascertaining the amount of tax due, it must follow the method prescribed by the Legislature, and the statutory formula must be followed by the taxing authorities. In this case the statutory formula of "equal mileage proportion" within the State of its interstate business is clear and specific as to gross revenue. While the State contends that the statutory method of ascertaining gross revenue does not produce the exact gross revenue and it offers evidence tending to show that the gross revenue was probably larger than the amount produced by the use of the formula (though no data was furnished by which any amount of alleged excess could even be approximated), the State

cannot abandon the statutory method, as this is the only lawful method of finding gross revenue. The method was adopted by the State on the theory that it will produce an approximately true result.

The Railway Company undertakes to prove that the State operating ratio is very much higher than the system operating ratio.

Mr. Roberts, the only witness for the State on this point, referring to the testimony of the Railway witnesses, Vaughan and Conrad, as to the operating expenses of the North Carolina branches, said (R. 45): "I think their figures may be accepted at face value without being seriously misleading as respects the relation of operating expenses on the branch lines to those on the main lines of the system. On a unit basis, the branch line expenses are unquestionable the higher, principally due to relatively lighter traffic density, and operating obstacles in the way of grades and curves, which are excessive on the branches as compared with the balance of the system." And he further testified (R. 103): "It has been shown that the branch line expenses are relatively higher than the average for the system," and the Railway contends that the ratio of expenses to earnings on the North Carolina branches of the Railway is so greatly in excess of the system ratio as to result in a showing of income where no income exists or income substantially in excess of the reality, and that the statutory formula of system operating ratio has produced a fictitious income, an income derived from the result of operations outside of the State.

In dealing with matters of this kind, absolute accuracy is generally impossible and accordingly the legislatures have adopted statutory methods for arriving at the amounts to be taxed and these methods have been upheld by the Courts whenever the results produced are ap-

proximately correct, but if the plan pursued is arbitrary and the consequent valuation on income upon which the tax is assessed grossly excessive, it cannot be enforced.

In Southern Railway Company v. Kentucky, 274 U. S. 76, a State franchise tax was laid upon the intangible property of the Railway Company within the State. The statutory method was to capitalize the net operating income of the railroad's entire system and assign to Kentucky its mileage proportion of that amount after deduction of tangible property otherwise taxed. The amount of the tax in suit was attributable to the lines of the Southern Railway in Kentucky, a Kentucky subsidiary of the Virginia corporation, Southern Railway Company, but the operating income of the entire system was used for capitalization and division on the statutory mileage basis. The tax was declared invalid, the Supreme Court observing:

"The operating results of the system compared with those of the Southern Railway Company in Kentucky show that, on the basis of valuation adopted by the State, the average value per mile of the lines of that company is very much less than the average value per mile of the system. If taken separately it is clear that, because of lack of net earnings, no substantial intangible elements of value could reasonably be attributed to the railroad of that company. In order to justify the increases made, there would have to be attributed to these lines large amounts from system earnings.

"And as the direct earnings per mile of the lines of that company are so much less than the average for the system, it is plain that the amount adjudged to have been omitted was arbitrarily excessive and included values of system property beyond the limits of Kentucky."

The Referee concludes from the facts found that the statutory formula of Section 312 of the Revenue Acts of

1927 and 1929, providing for the application of the system ratio of operating expenses to earnings, puts an unreasonable burden on the Railway Company in that the Railway Company has shown, as appears from the findings of fact, that the use of this method of ascertaining the operating expenses attributable to the State does not produce a result approximately correct—that the expenses of the operation of the branch lines in the State in the years 1927, 1928 and 1929, were greater than the gross operating revenues during each of those years.

The Referee therefore, concludes that the Railway Company is entitled to recover from the State the amounts paid by it under protest as income taxes in each of said years, as shown by finding No. 1, with interest thereon from the date of payment.

J. CRAWFORD BIGGS,
Referee.

January 31, 1934.

Upon the coming in of the report of the Referee, the plaintiff filed objections and exceptions thereto as follows:

OBJECTIONS AND EXCEPTIONS TO THE REPORT OF J. CRAWFORD BIGGS, REFEREE

North Carolina—Wake County.
In the Superior Court.

A. J. Maxwell, Commissioner of Revenue
v.
Norfolk & Western Railway Co.

Upon the coming in of the report of the Referee the plaintiff objects and excepts thereto as follows, to wit:

EXCEPTION 1. That the Referee totally failed to pass upon the competency and admissibility of evidence upon the objections of the plaintiff, herein below more

specifically set out, and to say whether the said evidence should be admitted or excluded as he was required to do by law and the practice of the courts.

EXCEPTION 2. That the Referee admitted over the objection of plaintiff, question No. 2 on page 1, Gooch Vaughan Record, and the answers thereto, and admtited the documentary matter therein contained, all of which is incompetent and irrelevant and inadmissible for the reasons stated in the objections made thereto in apt time and committed to writing.

EXCEPTION 3. That the Referee admitted over the objection of the plaintiff the statement contained in the above mentioned answer of the witness Gooch, last paragraph, the grounds of the exception being set out in the objection; and also because the statement is speculative, argumentative, and states the conclusion of the witness.

EXCEPTION 4. The plaintiff excepts to question No. 3 on page 2, same record, and the answer thereto running through pages 2 to 5 of said record, the reasons for the said exception being first stated in the written objection on file.

EXCEPTION 5. The plaintiff excepts to question No. 5 on page 5 and the answer thereto.

EXCEPTION 6. The plaintiff excepts to the admission of the testimony and evidence of question No. 6 and answer thereto beginning on page 6 for the reasons set out in the written objection.

EXCEPTION 7. The plaintiff excepts to the admission of the testimony of question 10, page 9 and the answer thereto.

EXCEPTION 8. The plaintiff excepts to the admission over his objection of question 12 and answer thereto upon the grounds set out in the written objection.

EXCEPTION 9. Plaintiff excepts to the admission over his objection of question 13 and answers thereto

including Vaughan's Exhibit "B" and testimony of witnesses relative thereto for the reason set out in the written objection.

EXCEPTION 10. Plaintiff excepts to the admission over his objection of question 14 on page 12 and answers thereto.

EXCEPTION 11. Plaintiff excepts to admission over his objection of questions 15 and 16 and answers thereto.

EXCEPTION 12. Plaintiff excepts to admission over his objection of the evidence and testimony, questions 17, 18, 19, 20, 21, 22 and 23.

EXCEPTION 13. Plaintiff excepts to the admission over his objection of question 24 and answers thereto, page 17, including Conrad's Exhibit 7 and all testimony regarding the same.

EXCEPTION 14. Plaintiff excepts to the admission over his objection of question 25 and answers thereto, and the introduction of evidence over his objection and the five sheets constituting Exhibit "J." (Vaughan)

EXCEPTION 15. Plaintiff excepts to the admission over his objection of question 25 and especially to that part of the answer to question 25, being the last paragraph of said answer as it applies to years 1928 and 1929 as being incompetent and irrelevant.

EXCEPTION 16. Plaintiff excepts to the admission over his objection of question 26 and the answer thereto.

EXCEPTION 17. Plaintiff excepts to the admission over his objection of questions 27 and 28 on page 19 and answers thereto.

EXCEPTION 18. Plaintiff excepts to the admission over his objection of question 30 and answer thereto.

EXCEPTION 19. Plaintiff excepts to the admission over his objection of question 31 and answer thereto.

The plaintiff further objects and excepts to the portion of the testimony of K. V. Conrad and to the evidence and Exhibits introduced thereunder as follows:

EXCEPTION 20. Plaintiff excepts to the admission over his objection of Exhibits of Conrad, 1, 2, 3, 4 and 5, and the testimony of the witness regarding the same on pages 1 to 6 and following.

EXCEPTION 21. Plaintiff excepts to the admission over his objection of the paragraph on page 7 in Conrad's Exhibit 6.

EXCEPTION 22. Plaintiff excepts to the introduction over his objection of Conrad's Exhibit 7 and the statements and declarations of the witness in regard to same on pages 7 and following.

EXCEPTION 23. Plaintiff excepts to the admission over his objection of question 10 and answers thereto on page 8.

EXCEPTION 24. Plaintiff excepts to the introduction of evidence over his objection of Conrad's Exhibit 8 and testimony concerning it or based upon it.

EXCEPTION 25. Plaintiff excepts to the admission over his objection of question 12, page 12 and the answer thereto and to Exhibit No. 9.

The plaintiff's further exceptions to the admission of the following evidence over his objections thereto, being each separate and distinct, as follows:

EXCEPTION 26. Plaintiff excepts to the admission of question 13 on page 13 and answers thereto, and the introduction of Exhibit 10.

EXCEPTION 27. Plaintiff excepts to the admission of question 14 on page 14 and the following.

EXCEPTION 28. Plaintiff excepts to the admission of question 15 on page 15 and answers thereto and introduction of Conrad's Exhibit 11.

EXCEPTION 29. Plaintiff excepts to the admission of question 16, page 16, question 17 and 18, pages 18 and 19, question 19, page 20, question 20, pages 20 and 21, question 21, pages 22, 23, 24 and 25, question 23,

pages 25, 26, question 24, page 26, question 25, page 27, question 26, page 27, and answers thereto and especially to the introduction and evidence of Conrad, Exhibits 12 and 13.

EXCEPTION 30. Plaintiff excepts to the admission of question 27 on page 28 and answer thereto.

EXCEPTION 31. Plaintiff excepts to the admission of the testimony of R. H. Smith at the hearing before the Referee on April 1, 1933 and April 11, 1933 relating to the document identified as Exhibit "C."

EXCEPTION 32. Plaintiff excepts to the introduction in evidence over his objection of the testimony of K. V. Conrad on page 57, the last question, in which the witness attempts to analyze Vaughan's Exhibit "I."

EXCEPTION 33. Plaintiff excepts to the admission over his objection of the question on the bottom of this page and the answer thereto on the following page 58.

EXCEPTIONS TO THE FINDINGS OF FACT

The plaintiff objects and excepts to the findings of fact in the Referee's report as follows, to-wit:

EXCEPTION 34. The plaintiff objects and excepts to finding of fact No. 1, for the reason that there is no evidence or admission in the record, and no admission of any sort has ever been made to support the finding contained in the last sentence of the paragraph. The plaintiff has never conceded, and does not now concede, that the figures set up in this finding, even after the correction mentioned, properly represent the actual gross revenues of the defendant railway company in North Carolina; but on the contrary, plaintiff has always contended that such actual operating gross revenue is much larger than the figures stated, and much larger than that determined in the allocation formula of the statute. The State has conceded only that with the correction applied as a basis of the calculation, the formula was from a procedural

point of view, correctly applied, and the result reached was the correct mathematical result following its application.

In so far as this paragraph may have been intended to constitute a finding of fact, and in so far as it does constitute a finding of fact, to the effect that the gross operating revenues of the defendant railway company in North Carolina for the years in question were such as indicated by the figures mentioned, the defendant objects and excepts thereto, because there is no finding in the record to support such finding, and because it is contrary to the evidence and contrary to the facts which the evidence tends to prove and which it establishes.

Upon this exception, and upon the evidence in the record pertinent thereto, and upon the further exceptions relating to this subject set out below, the plaintiff, not waiving his demurrer to the evidence of the defendant and motion for non-suit, and not waiving his contention that the defendant has not made out his case as a matter of law, tenders the following issues:

A. What were the actual gross operating revenues of the defendant railway company in North Carolina, and properly attributable thereto, for the year 1927?

Ans. _____.

B. What were the actual gross operating revenues of the defendant railway company in North Carolina, and properly attributable thereto, for the year 1928?

Ans. _____.

C. What were the actual gross operating revenues of the defendant railway company in North Carolina, and properly attributable thereto, for the year 1929?

Ans. _____.

EXCEPTION 35. The plaintiff excepts to finding of fact No. 2, for the reason that the said finding of fact has no evidence supporting it, and if the Court should be

of the opinion that portions of the evidence excepted to are admissible and bear upon the question at all for that the said finding is contrary to the evidence and contrary to the facts which the evidence tends to establish.

Upon this exception, and upon the preceding and subsequent exceptions relating to the subject, and upon the evidence in the record pertinent thereto, the plaintiff, not waiving his demurrer to the evidence of the defendant and motion for non-suit, and not waiving his contention that the defendant has not made out its case as a matter of law, tenders the following issues:

D. Were the actual expenses, properly assignable to North Carolina for the conduct of the business of the defendant company for the year 1927 substantially greater in proportion to the actual gross operating revenues of said railway company, properly assignable to this State, than the system ratio of operating expenses to operating revenues in said year?

Ans. _____.

E. Were the actual expenses, properly assignable to North Carolina for the conduct of the business of the defendant company for the year 1928 substantially greater in proportion to the actual gross operating revenues of said railway company, properly assignable to this State, than the system ratio of operating expenses to operating revenues in said year?

Ans. _____.

F. Were the actual expenses, properly assignable to North Carolina for the conduct of the business of the defendant company for the year 1929 substantially greater in proportion to the actual gross operating revenues of said railway company, properly assignable to this State, than the system ratio of operating expenses to operating revenues in said year?

Ans. _____.

EXCEPTION 36. Plaintiff excepts to finding of fact No. 4, for the reason that it is incomplete and inadequate, and does not sufficiently find the facts upon the phase of the subject to which it relates, and in such finding presents a partial, distorted and erroneous view which is reflected in the conclusions of law; and in this connection plaintiff will further object and except to the failure to find certain facts which may be taken in connection with this exception.

EXCEPTION 37. The plaintiff objects and excepts to the findings embraced in the Referee's finding of fact No. 5, because there is no evidence to support it; and if the Court should be of the opinion that certain evidence proposed by defendant, to which objection has been made, should be admitted, and that the same is relevant upon this finding, the plaintiff further objects and excepts, for the reason that the finding is contrary to the evidence and not supported thereby.

EXCEPTION 38. The plaintiff objects and excepts to the finding of fact embraced in the Referee's finding of fact No. 6, except in so far as such finding refers to the division of the railway company's property in operating districts, upon the grounds that there is no evidence to support it, and upon the further grounds that it is contrary to the evidence.

EXCEPTION 39. The plaintiff objects and excepts to the Referee's finding of fact No. 7, except in so far as it is therein stated that the evidence furnished by the defendant consists of a purported twelve-day test period, taking the first Thursdays of each month, and upon the grounds that the evidence does not support such finding.

EXCEPTION 40. The plaintiff objects and excepts to the Referee's finding of fact No. 8, except in so far as the same refers to the system of bookkeeping prescribed by the Interstate Commerce Commission, and adopted by

the defendant, upon the grounds that it is contrary to the evidence.

EXCEPTION 41. The defendant objects and excepts to the findings of fact embraced in the Referee's finding of fact No. 9, except in so far as it constitutes a finding of the procedure adopted by the defendant in allocating expenses to North Carolina. Plaintiff's exception hereto is because the evidence does not support the finding of fact, and for the further reason that the finding is partial, incomplete and inadequate, and does not deal with the sufficient number of the factors covering this phase of the case to enable the Referee, or the Court, to properly arrive at the issues involved, and because it includes in the finding a very large total of expenses that are not propery assignable to North Carolina, and which are, however, made the basis of conclusions, both of law and fact, which are unwarranted by the evidence.

Upon this exception, and upon the preceding and subsequent exceptions relating to the subject, and upon the evidence in the record pertinent thereto, the plaintiff, not waiving his demurrer to the evidence of the defendant and motion for non-suit, and not waiving his contention that the defendant has not made out its case as a matter of law, tenders the following issues:

G. What were the actual operating expenses of defendant railway company, properly attributable solely to the State of North Carolina, for the year 1927?

Ans. _____

H. What were the actual operating expenses of defendant railway company, properly attributable solely to the State of North Carolina, for the year 1928?

Ans. _____

I. What were the actual operating expenses of defendant railway company, properly attributable solely to the State of North Carolina, for the year 1929?

Ans. _____.

EXCEPTION 42. The plaintiff objects and excepts to the finding of fact included in the Referee's finding of fact No. 10, for the reason that such finding of fact is not supported by the evidence, but is contrary thereto.

EXCEPTION 43. The plaintiff objects and excepts to the finding of fact No. 11, for the reason that such finding of fact is not supported by evidence, and is contrary thereto.

Upon this exception, and upon the preceding and subsequent exceptions relating to the subject, and upon the evidence in the record pertinent thereto, the plaintiff, not waiving his demurrer to the evidence of the defendant and motion for non-suit, and not waiving his contention that the defendant has not made out its case as a matter of law, tenders the following issue:

J. Was the actual taxable income of the defendant railway company for the years 1927, 1928 and 1929, properly assignable to the State of North Carolina, substantially less than that which was arrived at by application of the statutory formula?

Ans._____.

EXCEPTION 44. Plaintiff objects and excepts to the finding of fact No. 12, for the reason that the finding of fact is entirely unsupported by the evidence, and is contrary thereto.

Plaintiff further objects and excepts, because the said finding of fact and the sub-divisions thereof, are partial, incomplete, inadequate, and ignore entirely important evidence relating to the issue, all of which is undisputed, and the tendency of which is to counteract and contradict

the inferences drawn by the Referee in his supporting finding.

Upon this exception, and upon the preceding and subsequent exceptions relating to the subject, and upon the evidence in the record pertinent thereto, the plaintiff, not waiving his demurrer to the evidence of the defendant and motion for nonsuit, and not waiving his contention that the defendant has not made out its case as a matter of law, tenders the following issue:

K. Was the ratio between the actual operating expenses, properly attributable to North Carolina for the years 1927, 1928 and 1929, and the actual gross revenues properly attributable to the said State for the said years, substantially greater than the ratio between the system operating expenses and the system operating revenues for said years?

Ans._____.

Plaintiff further objects and excepts to the report of the Referee, and the findings of fact therein, for the reason that the Referee failed to find certain essential facts upon the evidence as below herein set out.

EXCEPTION 45. The Referee should have found the facts set out in plaintiff's request under paragraph 2.

EXCEPTION 46. The Referee should have found the facts in accordance with plaintiff's request for findings of fact No. 4, to which reference is here made.

EXCEPTION 47. The Referee should have found the facts in accordance with plaintiff's request for finding No. 5, which is herein referred to as a part of this exception.

EXCEPTION 48. The Referee should have found the facts in accordance with plaintiff's request for finding No. 6, which is herein referred to as a part of this exception.

EXCEPTION 49. The Referee should have found the facts in accordance with plaintiff's request for finding No. 7, which is herein referred to and made a part of this exception.

EXCEPTION 50. The Referee should have found the facts in accordance with plaintiff's request for finding No. 8, which is made a part of this exception.

EXCEPTION 51. The Referee should have found the facts in accordance with plaintiff's request for finding No. 9, which is made a part of this exception.

EXCEPTION 52. That the Referee failed to find as a fact that the defendant has many branches of its lines which do not enter the State of North Carolina, and which are subject to all the conditions, topographical and otherwise, allegedly making for greater operating expenses which have been predicated of the North Carolina branches, and which enter into the determination of the system ratio.

The foregoing request for findings of fact are hereto attached and incorporated herein as Exhibit A, opposite page 116, and each paragraph referred to is made a part of the appropriate exception.

EXCEPTION 53. That the Referee failed to find as a fact that a large part of defendant's main line runs through mountainous portions of Virginia and West Virginia, presenting at least as great difficulties of maintenance and operation as are presented by the North Carolina lines, although such fact is undisputed and fully appears from defendant's evidence.

EXCEPTION 54. Because the Referee failed to find that by far the greater part of defendant's transportation of commodities is through the mountainous parts of West Virginia and Virginia, a large part of which does not reach North Carolina at all, but which enters into the determination of the system ratio.

EXCEPTION 55. Because the Referee failed to find as a fact that by far the larger proportion of traffic over defendant's road reaching North Carolina in interstate transportation, is transported through the mountainous parts of Virginia and West Virginia, presenting difficulties of maintenance and operation, and increasing the cost thereof to a larger degree than may be predicated of the North Carolina portion of said lines, proportionately increasing the ratio of costs to revenue, if that be true of the North Carolina lines, and yet this is not taken into consideration in the comparison made in the defendant's evidence.

EXCEPTION 56. Because the Referee failed to find as a fact that the defendant has merely applied a total of improperly charged items of costs for North Carolina business against the average allocated revenues of North Carolina, and has not shown the system ratio to be incorrect or unconstitutional, as applied to actual revenues received on account of North Carolina business, and properly assignable, as earned on the North Carolina portion of interstate business.

EXCEPTION 57. Because the Referee failed to find as a fact that the gross revenue received in North Carolina for the years in question, as compared to the system revenue (North Carolina revenue included), was in the proportion of 147.7 to 100 per ton mile, showing that the mileage pro rate formula of the statute allocated to North Carolina less revenue than the actual revenue upon the total tonnage hauled by at least 47 per cent.

EXCEPTION 58. Because the Referee failed to find as a fact that the gross revenue properly assignable to North Carolina, and earned by North Carolina business upon the defendant's transactions for the years 1927, 1928 and 1929, was more than_____.

EXCEPTION 59. For that the Referee failed to find as a fact that the Durham Division of the Norfolk-Western Railroad, used by the defendant for the ascertainment of certain costs and expenses of operation in North Carolina by the process of allocation and prorating, is not coincident nor coextensive with the territory covered by the interstate activities of the defendant, and its transportation partly in North Carolina and the business and transaction relating to such interstate traffic; and the divisions of the costs of operation in such restricted territory and proportioning thereof to North Carolina for the purpose of showing the costs of operation in North Carolina, is not permissible, as the resulting prorate assigns to North Carolina operations a larger proportion of costs than would have resulted from a proper prorating, taking into consideration the extent of territory and mileage actually concerned in the transactions; and the figures representing such items of costs should be stricken from the totals, which are too large by such amount.

EXCEPTION 60. The plaintiff makes the same exception with regard to the Winston-Salem division.

EXCEPTION 61. That the Referee failed to find that each of the divisions above referred to were not coincident, co-extensive or representative, in scope, extent, and in number, amount and volume of transactions with the territory, mileage and traffic involved in the interstate operations of defendant touching North Carolina, and carried on partly therein, but represents only a small fractional part thereof; that a very large part of the traffic to which such costs of operation properly applied extended beyond the restricted territory selected by the defendant, and the principle of proportion and prorate of costs could be properly applied only to the whole; and the arbitrary selection of territory alliance, both as re-

garding the State line and as regarding the restricted mileage, included in the district or division, greatly and unjustly increases the ascertained costs of operation in North Carolina, and assigns to it costs of operations that should have been charged against other territory and operations therein, and revenues allocated elsewhere.

EXCEPTION 62. That the Referee failed to find as a matter of fact that the allocation statute, in its application to this defendant, and its business during the years in question, produced a nearer approximation to the actual facts and to the net taxable revenue of the defendant during those years than the figures contended for by the defendant, and arrived at by the methods employed by the defendant in this case.

Upon the foregoing exception, and all of them, and upon the evidence in the record pertinent thereto, the plaintiff not waiving his demurrer to the evidence of the defendant and motion for nonsuit, and not waiving his contention that the defendant has not made out his case as a matter of law, tenders the following issues:

L. Does the formula set out in the North Carolina statute, under which the taxes were levied, have the effect of allocating to North Carolina a substantially greater proportion of net income than is actually earned in said State, and properly attributable thereto, after considering all the factors relating to costs of operation and actual gross revenues properly attributable to the said State for the years 1927, 1928 and 1929?

M. What, if anything, is the defendant entitled to recover of the plaintiff in this action?

EXCEPTIONS TO THE CONCLUSIONS OF LAW.

The Referee has submitted under the head "Conclusions of Law" nearly eight pages of matter, without separately numbering the conclusions of law contained therein.

Copy of the report so bracketed is attached (Exhibit B).

Much attention has been given in an argumentative way to supposed concessions by the State, made both in the so-called pleadings in the evidence and in the brief. We deem it within the proper scope of these exceptions to submit respectfully that the Referee is in error as to the suggested concessions, and wholly misinterprets the statements cited in the plaintiff's brief.

This preliminary statement is rendered necessary, because it is obvious to the Court that we are compelled to segregate the number for our own convenience, and that of the Court, of the objectionable conclusions arrived at by the Referee and mingled in the form of an argument in the nine-page statement of the conclusions of law.

EXCEPTION 63. The plaintiff objects and excepts to the conclusions of law set out by the Referee in his report, and each and every part thereof, because they are not supported by the findings of fact made by him in the report.

EXCEPTION 64. The plaintiff objects and excepts to the conclusions of law in the report, and each and every part thereof, because such conclusions are contrary to the law and are not supported by the evidence in this case, but are based upon findings which are in themselves partial, incomplete, inadequate and erroneous, and are not supported by the evidence.

EXCEPTION 65. The plaintiff objects and excepts to the statements and conclusions bracketed between the letters A and B in the conclusions of law, as being contrary to the record in the cause. The State has never conceded that "it was practically impossible to ascertain the gross revenue on interstate business by undertaking to arrive at the revenue attributable to the State on each interstate shipment," except as it might relate to joint factors earning such revenue; but the State has pointed

out in justification for the use of an allocation formula that such a method of ascertainment would involve enormous expense.

As to the gross income, the State has never conceded that the averaged allocated income attributed to North Carolina by the statute, represented the actual gross income so received, but has always contended that such actual gross income was much larger, and has insisted that it was incumbent upon the defendant, in the discharge of the burden resting upon it, to deal with actual rather than averaged allocated income.

EXCEPTION 66. The plaintiff objects and excepts to the conclusions of the Referee embraced in the bracketed portion of his findings included between the letters C and D. This part of the Referee's findings clearly puts upon the State a burden which the law places upon the defendant, who has attempted to show that it has no actual net income in North Carolina, or that it is substantially less than that which the statutory formula ascertains. Furthermore, while the burden does not rest upon the State to do so, it has abundantly shown by the evidence, both generally and specifically, that the income of the defendant railway company from transporting freight solely within North Carolina, and with respect to such part of interstate traffic as touches its borders, is very much larger than similar income from system transportation. And the evidence in the record is sufficient to base a finding of fact as to the relative and actual amount of increased revenues from this cause.

EXCEPTION 67. The plaintiff objects and excepts to the conclusions of the Referee embraced within the bracketed portion thereof between the letters E and F, because such conclusion is not supported by any record, pleadings or argument presented to the court.

The State has never contended that it was not open to the defendant railway company to show its actual operating expenses in North Carolina to be greater with respect to its actual revenues attributable to this State than the statutory formula prescribes, if it could do so, nor has the State ever contended that the defendant could not, as a step in that direction, show what those actual expenses were; the State, however, has contended that this is only one part of the burden resting upon the defendant, and that it has not carried the full burden until it has compared such expenses with actual and not averaged or allocated revenue, and found the actual net or taxable income to be less than the State has taxed.

The State does not limit its objection and exception to this portion of finding of fact to the foregoing, but makes the statement for clarity.

EXCEPTION 68. The plaintiff objects and excepts to that portion of the conclusions bracketed and embraced between the letters G and H, as being both erroneous in law and not supported by the evidence in this case, or any findings of fact which could be properly made thereon.

The State in its brief was referring to the difficulties which the defendant had in producing evidence—not that it was physically impossible.

The plaintiff further excepts to this portion of the Referee's conclusions, for the reason first, that it entirely ignores the evidence in the case, and is not correlated thereto, in that the evidence abundantly discloses that the actual gross revenues in the State of North Carolina were much larger than that allocated by the statutory formula, all of which the plaintiff, upon the argument hereof, will be able to show; and further that such larger gross revenue, properly attributable to the State of North Carolina, was more than enough to absorb any additional expense incurred by the defendant, and properly assignable to

this State, concerned in its protection; second, that the finding placing upon the plaintiff in this cause the burden of an issue, which by all the authorities rightfully belongs to the defendant alone, that is to say, the burden of showing a substantially less net income attributable to North Carolina than that which the statutory formula ascertains, and which is taxed; and third, because the Referee holds as a matter of law that the defendant in this case, attacking the result of the entire allocation formula, may rest his case upon a supposed presumption of the correctness of one portion of the allocation fraction in producing a correct result as to actual gross income earned by the defendant and properly attributable to North Carolina during the years in question.

The State contends that the proper function of this portion of the allocation fraction is to arrive at a taxable net for the purpose of taxation alone; that it is conventional in its character entirely, and neither in its elements nor in its completed form does it constitute evidence such as can be introduced in a court of law upon the issues involved in this case.

EXCEPTION 68. Plaintiff objects and excepts to the conclusions of the Referee bracketed and included between the letters I and J, for the reason that such conclusions are erroneous in law, are not based upon or correlated with the evidence in this case, or upon any finding of fact, which might properly be made from the evidence; and plaintiff points out, first, that the said conclusions of law virtually adopt the erroneous view presented by the defendant in this case, that the North Carolina statute of allocation presents an alternative method of arriving at expenses of operation in this State, and that the term "operating ratio" used in the statute, does not necessarily mean "the proportionate average of operating expenses," and that it is open to the defendant, as a mat-

ter of law, and under the statute itself, to have adopted as a member of the allocation fraction "the proportionate average of operating expenses," instead of "operating ratio," with its own interpretation of what that may mean; second, the Referee holds that notwithstanding any evidence in the record tending to show that the actual gross revenues properly assignable to North Carolina were larger than the allocation statute attributes, "the State cannot abandon the statutory method, as this is the only lawful method of finding gross revenue"; thus holding as a matter of law that the defendant is not required at all, in attacking the statute, as having an unconstitutional effect on it, to show that it is taxed upon more than its actual net income, and that the burden would be upon the State to show a larger income, but that even if it could do so by actual figures, even such as would show an actual taxable net of many times that ascertained by the allocation formula, it would not, as a matter of law, be permitted to do so, because:

"The method was adopted by the State on the theory that it would produce an approximately true result."

The plaintiff does not confine its objection and exception solely to the foregoing, but points it out here solely for the purpose of clarity.

EXCEPTION 70. The plaintiff objects and excepts to the conclusions bracketed and included between the letters K and L, because in support of the conclusion of law, certain evidence is taken entirely out of its setting, other evidence connected with it ignored, and a partial statement of a witness is taken to support an entire conclusion of law, whereas it will be obvious from the record that the full statement of this witness, Roberts, and the conclusions arrived at by him, are directly the contrary to what the Referee has inferred in this paragraph.

EXCEPTION 71. The plaintiff objects and excepts to the bracketed portion of the Referee's conclusion contained between the letters M and N, for the reason that the conclusions of law are erroneous and inapplicable to any of the issues in the matter now before the Court.

Plaintiff points out that a reading of the case of Southern Railway v. Kentucky, 274 U. S. 76 (which was cited by the defendant company in its brief in this case), has no application whatever to the case involved, and in no respect supports the findings of the Referee in this case.

EXCEPTION 72. The plaintiff objects and excepts to the conclusions of the Referee included between the letters O and P, for the reason that they are erroneous in law and are not based upon the evidence, or upon any proper finding of fact upon the evidence, which could be made in this case.

The plaintiff further objects and excepts to the conclusion of law made by the Referee as follows, to-wit:

EXCEPTION 73. That the Referee failed to find as a matter of law that upon an interpretation of the statute the term "system ratio" is properly interpreted as "ratio of system expenses to "system revenue," and the interpretation put upon it in determining defendant's net for taxation was proper.

EXCEPTION 74. That the Referee failed to conclude as a matter of law that the burden rested upon the defendant to show by proper evidence that its actual net revenue in North Carolina, subject to taxation in said state, is substantially less than the taxable net found by the statute.

EXCEPTION 75. That the Referee failed to conclude and state as a matter of law that all the expenses concerned in the joint production of revenue in interstate business should be ratably distributed and charged against such total revenue, and only a fair proportion thereof

charged against North Carolina operations included in the production of such revenue, when it is sought to ascertain the actual taxable revenue, and in attacking the statutory formula as unconstitutional and confiscatory.

EXCEPTION 76. Because the Referee failed to find as a matter of law that the items of maintenance of way were not solely chargeable against North Carolina revenue, by reason of having been spent in North Carolina and on a portion of defendant's roadway in North Carolina, when considering costs of earning interstate revenue on operations in the road's unitary business, such operations beginning in North Carolina and ending in other states, or beginning in other states and ending in North Carolina.

EXCEPTION 77. Because the Referee failed to conclude and state as a matter of law that the item of terminal expenses is not properly charged or set up against North Carolina revenue, in connection with interstate business touching this state, and is not chargeable merely because disbursed in this state; but is only to be charged ratably with other factors of expense against the total revenues produced by the joint operations necessary to the earning of the revenues, and concerned therewith, and a fair proportion thereof charged against North Carolina revenue.

EXCEPTION 78. Because the Referee failed to find and state as a matter of law that the total of costs set up as a charge against, and deduction from, gross revenues assigned to North Carolina contains a large amount of expenses and disbursements not properly chargeable against said revenues which should be stricken from the total, namely, those costs and expenses which were arbitrarily assigned in violation of the preceding principles of law, and which were not prorated in accordance therewith.

EXCEPTION 79. Because the Referee failed to find as a matter of law that the unitary character of the defendant's business justly and lawfully required that, in determining operating costs properly assignable to North Carolina, especially in its interstate operations and allocation, and distribution of the items of expense purporting to be listed and totaled in defendant's statement, must be made not in the manner attempted, but in an equitable manner, taking into consideration the total revenue earned in such transaction, and the total costs of earning the same.

EXCEPTION 80. Because the Referee did not find and conclude as a matter of law that because of the unitary nature of defendant's business, as before explained, a reasonable allocation is not only justifiable, but necessary, in ascertaining costs, as well as revenue, which costs to be charged against revenue must be taken in relation to the revenue which they produce, and in relation to the operations or transactions resulting in revenue; that costs of a transaction partly in North Carolina and partly in another state, as the transportation of a shipment of freight, cannot be arbitrarily segregated and a portion thereof charged against North Carolina revenue, merely because expenditure was made in that state, and without regard to the joint revenues earned by it in connection with all the other costs entering into the transaction or transportation; that equality and fairness can be secured only by a reasonable averaging and prorating of such costs, and an allocation to the state of its fair and reasonable pro rata part thereof.

EXCEPTION 81. That the Referee failed to conclude and state as a matter of law that in this case, where the defendant is attacking the operation of the statute on the ground that the result of its application levies an unconstitutional tax, in that it taxes a greater

net income than actually exists, the State is not bound by the gross income figure determined by the allocation formula in the statute and the mileage prorate, but it is competent to consider the evidence, tending to show actual gross revenue in North Carolina upon the business actually done there in intrastate, and such part of interstate business as rightfully belongs to North Carolina as a revenue producing activity therein, and that such greater revenue may be shown, notwithstanding the allocation formula.

EXCEPTION 82. That the Referee failed to conclude as a matter of law that in considering the actual effect of the application of the complex statutory formula to defendant's business, and the alleged unconstitutionality thereof, it is as competent and necessary to consider actual gross revenue properly attributable to North Carolina as it is to consider actual costs of operation so attributable, in order to ascertain the taxable net; and neither the defendant nor the plaintiff is estopped by any rule of law or evidence, or any admission in the record there showing by competent evidence that such gross revenue is either greater or less than that determined by the statute for purpose of taxation.

EXCEPTION 83. Because the Referee failed to conclude as a matter of law that the North Carolina statute in question was enacted solely for the purpose of arriving at a fair approximate figure to represent the net taxable income of the taxpayer for the income years in question, and not as a rule of evidence, or to raise any presumption in a judicial investigation regarding gross revenue; and the fractional part of the formula relating to revenue cannot be used by the taxpayer for the purpose of proving actual revenue in attacking the statute for unconstitutionality as producing a confiscatory result when applied as a whole.

EXCEPTION 84. Because the Referee failed to find that the formulatory statute referred to was enacted and must be interpreted as an entirety, inseparable in its application; that the statute does not contemplate the separate ascertainment of gross income, but supplies a formula to be used only in connection with that portion of the fraction relating to costs, in order to ascertain net taxable income; that it incorporates the principle of experience and average in allocating the gross revenue, and the same principle in relation to costs of operation, thus justifying a comparison between the two; that when the statute is attacked because of its alleged unconstitutional effect when applied, it is open to both defendant and plaintiff to show that gross operating expense are greater or less than that determined by the formula, and that actual gross revenue is either greater or less than that so determined, which must be done by competent legal evidence; but the burden is upon the defendant to show in the conclusive manner laid down by the courts that it has been taxed on the net income it did not enjoy, and the consideration of actual gross revenue is essential to such conclusion, irrespective of the manner in which it is proved, and, therefore, necessarily concerns the burden of proof resting upon the defendant.

EXCEPTION 85. Because the Referee did not sustain the demurrer of the plaintiff to the evidence of the defendant and grant the motion for judgment of nonsuit made at the conclusion of the defendant's evidence and at the conclusion of all the evidence.

EXCEPTION 86. Because the Referee failed to find as a matter of law that the defendant had failed to carry the burden which rested upon it to show conclusively to the court that the application of the statute to it taxed a substantially greater income than that enjoyed by the defendant, and was unconstitutional in its results as so applied.

EXCEPTION 87. That the Referee failed to conclude as a matter of law that the defendant had not carried the burden which rested upon it to show a greater amount of taxable revenue during the years in question than that determined by the application of the statute, in that notwithstanding any showing of costs of operation which was made by the defendant, nevertheless, the defendant failed to show that the gross operating revenues, or the gross income, for the years in question, were not sufficiently great to have absorbed such greater costs. Underwood Typewriter Co. v. _____.

EXCEPTION 88. That the Referee should have found that the operation of the statute upon the defendant did not produce any unconstitutional result, did not deprive it of its property unlawfully, and did not deny of it equal protection of the law, and impose no unconstitutional burden on interstate commerce, and did not violate any clause of the State or Federal Constitution.

EXCEPTION 89. That the Referee should have concluded that the defendant is not entitled to recover the taxes paid by it, or any part thereof.

A. J. MAXWELL,
Commissioner of Revenue, Plaintiff.

By DENNIS G. BRUMMITT,
Attorney General.

A. A. F. SEAWELL,
Assistant Attorney General.

EXHIBIT "A"

PLAINTIFF'S REQUEST FOR FINDINGS OF FACT AND CONCLUSIONS OF LAW.

North Carolina—Wake County.

In the Superior Court.
Before Hon. J. Crawford Biggs, Referee.

The State of North Carolina on the Relation of
A. J. Maxwell, Commissioner of Revenue
v.
Norfolk & Western Railway Company.

The plaintiff respectfully requests the following Findings of Fact and Conclusions of Law:

1. On the 9th day of January, 1931, the defendant paid to the Commissioner of Revenue the taxes imposed on its net income in North Carolina for the years 1927, 1928 and 1929, with interest thereon, in the amount of $86,421.71. The tax was paid under protest and this proceeding is prosecuted by defendant to recover the tax, refund of which was refused.

2. Defendant is a common carrier of freight and passengers, its lines lying in North Carolina, Virginia, Maryland, West Virginia, Kentucky and Ohio. Its lines traverse territory differing greatly in topography from mountains to plain. There are three branch lines in North Carolina, the principal of which lead from Durham to the Virginia State line and from Winston-Salem to the State line. At both Durham and Winston-Salem are located large factories, cotton mills, hosiery mills and other extensive enterprises which use defendant's road. Other railroads entering Winston-Salem are the Southern and Winston-Salem, South Bound, and other roads entering Durham are the Southern, Seaboard and Norfolk-Southern. The defendant enjoys an exchange

of traffic with these roads. Both centers are large shippers and distributors of freight.

Defendant's road is principally engaged in hauling coal. Eighty per cent of its system traffic is in coal, and fifty per cent of its North Carolina traffic is in coal. Therefore, twenty per cent of its system traffic only is in merchandise and commodities other than coal, and fifty per cent of its North Carolina traffic is in merchandise and commodities other than coal. Traffic other than coal yields a higher average of revenue than coal traffic.

Regarding rate classifications, the territory traversed by defendant's lines is divided into "official territory," and "southern territory." Most of defendant's road is in "official territory," and by far the major part of its operations is carried on in that territory. All of its *lines in North Carolina are* in "southern territory."

There is a marked and substantial difference between the two areas in rate classification, in the level of rates on which classified freight traffic moves, and as to the actual rates on which commodities move. Departures from class rates are less numerous in northern than in southern territory. The referee is unable to draw any useful inference from this distinction alone, as it furnishes no basis for comparison of actual rates under which freight moves and the revenue accruing therefrom. It is found, however, that the average level of rates on all traffic is materially higher in southern territory than in official territory. The evidence is, therefore, conclusive that the plaintiff receives a higher rate of pay for traffic on its North Carolina lines, both on account of the character of traffic, and on the higher level of rates on both coal and merchandise traffic.

The branches in North Carolina run through somewhat hilly country and there are grades and curves to a greater extent than on the level portion of defendant's

road. However, the same topography exists in large areas of the system outside North Carolina, and to a much larger degree in the mountainous sections of Virginia and West Virginia and in the foothills of the Piedmont section. The defendant did not compare its lines traversing this section with the branches in North Carolina, although the evidence discloses that fifty per cent of its North Carolina traffic and eighty per cent of its total traffic originates in mountainous territory.

The main lines of defendant's road carry a relatively denser traffic than do its lines in North Carolina.

3. The actual unit cost of transportation in North Carolina, as compared with those portions of defendant's lines running through plain country, is greater, but to what extent the evidence does not disclose. It is not clear, however, or it is not satisfactorily proved, that this is the case when comparison is made of transportation in North Carolina with transportation outside of North Carolina as to interstate traffic touching North Carolina as separated or segregated from general traffic, as there is no evidence as to its origin and route except in the case of coal. That commodity, however, is at least fifty per cent of defendant's North Carolina traffic, and, originating in the Virginia and West Virginia coal fields, must first be transported over territory presenting difficulties similar to, if not greater than, those encountered in North Carolina. The defendant has not instituted a comparison between these territories as to cost of transportation, but it arises upon the evidence. At any rate, the defendant did not treat this subject on a quantitative basis and has suggested no definite increment of increase attributable to this source and no specific finding is asked for or can be made. It is probable that these costs are more evenly distributed than a partial view of one part of the haul would disclose.

It is true that density of traffic tends to decrease operating costs. But no specific finding other than this is warranted on the evidence. Other factors considered enter into the result in an undetermined degree. The referee understands that this evidence is offered mainly for consideration in connection with its evidence presented as to total operating costs in North Carolina, in which connection it is given consideration.

4. The evidence concerning the "rate levels" in "official territory" and "southern territory" is more confusing than conflicting, although it is conflicting. But upon the whole evidence the referee is convinced, and finds as a fact, that substantially higher transportation charges prevailed in "southern territory," and in North Carolina, than was the case in "official territory," in which the greater portion of defendant's road lies, and in which the larger part of its business is done. The rates in North Carolina are higher in revenue yield and substantially offset any increase in operating cost growing out of the suggested difficulties of transportation and relative density.

This view is substantiated by the following evidence, amongst other:

(a) In its original income returns to the Commissioner of Revenue, this defendant adopted what is known as a card punch system or device, which was intended to compute by mechanical means the total revenue of business touching North Carolina on a per mile basis. It was discovered by a State official having this matter in charge that the method employed by the Railroad Company was wrong in that it took into account all of the traffic of the Railroad, instead of merely that touching North Carolina, as required by the North Carolina allocation statute. This dilution reduced the mileage prorate of revenue which should have been apportioned to

North Carolina, showing conclusively that transportation charges under which commodities actually move in the territory outside of North Carolina were lower and yielded comparatively less revenue.

(b) The testimony of J. W. Roberts and W. G. Womble, expert witnesses for the State, was to the effect that such a condition existed, regardless of the terms employed to designate transportation charges, whether class rates or commodity rates, and the testimony of Keeler, defendant's witness, in his closing statements was decidedly corroborative to that effect.

(c) As to the matter of coal traffic, no doubt about the matter can exist. The defendant is a "coal road" and the predominance of that traffic is a strong factor controlling this question. But there are others.

The statistical tables, both of the State and of the defendant, bearing on this subject, contained supposedly typical selected examples, both as to rates, extent and direction of movement, and months or periods dealt with. These are of value only when they are really typical in all these respects, and none of the tables deal with other than a small portion of the subject. In this connection, it may be stated that no useful inference may be drawn from the distinctions between class rates and commodity rates, as technical terms. Revenue is produced and costs are incurred only when there is an actual movement of the commodity under the rate, and only to the extent and volume of such movements. The referee is unable to avoid the conclusion, however, upon a study of these tables and the evidence relating thereto, that there is a very substantial difference in transportation charges under which traffic moves in volume in favor, as regards revenue, of southern territory and of North Carolina as a part of it, and finds that a higher level of rate does so obtain in this State, and that thereby substantially

more revenue may be reasonably attributed to North Carolina than that shown by the mileage prorate allocation used in the statute. In revised figures submitted by the plaintiff there is admission of reduction of expenses chargeable against North Carolina traffic of $859,734.45, for the years in question, as compared with figures in its reports for those years, and of increase in revenue assignable to North Carolina traffic of $438,346.99, and these revised figures take no account of the higher average level of rates on traffic touching its North Carolina lines.

5. The defendant arrived at an amount to represent operating costs in North Carolina by charging against the State all expenses incurred within the geographical boundaries, with certain other large district expenses allocated to it, all without regard to the joint use of the expense in the prosecution of the interstate enterprise. This is called "cost of operation in North Carolina," and, by defendant, it is horizontally compared with the averaged revenue allocated by the statute to North Carolina by the mileage prorate fraction, and sought to be subtracted therefrom. This would leave no revenue.

The defendant has no books, nor does it keep any records from which it can be ascertained directly, as a matter of bookkeeping and accounting, the operating expenses incurred in earning its interstate revenue in business touching North Carolina, and it cannot produce any total operating cost to compare with such total revenue, if the latter could be definitely ascertained, and no system or method of separately finding this total amount of operating cost applicable to North Carolina interstate business is suggested by defendant or is indeed possible. This comes partly from the ordinary application of the unitary use rule, which denies to the defendant the right to arbitrarily fix and evaluate the factors entering into

the joint expense earning this revenue, but further to a plain physical fact. Outside of North Carolina the interstate business touching this State, and that which does not touch the State is frequently carried on under the same expense factors or items, the freight itself, representing both kinds of business, transported in the same train, often in the same car, by the same train crew, and over the same road, and into the same terminal.

The defendant merely draws a geographical line along the State boundary and charges against North Carolina all expenses south of that line, in a physical sense, and allocates to it a part of the district expense, again by physical boundaries. This is balanced against the averaged North Carolina revenues at this stage.

The referee considers it essential for such a comparison that a relation be maintained between the expenses set up and the revenues they earn, inasmuch as both expenses and revenue are logically connnected and interrelated in business conducted both within and without the State. This method is contrary to the allocation rule provided in the statute, which contemplates an averaging and apportionment of expenses, regarding the principles stated in this section; but the objection to its use here is that it is still less suitable as a means of arriving at actual expenses when computing actual net income in North Carolina. The referee finds that a large but undetermined part of the total operating expenses charged against revenue in North Carolina is, by reason of the nature of the business, and because of its joint employment in producing revenue not allocated to this State, improperly charged against North Carolina revenue.

Finding the facts here in accordance with what the referee deems permissible in this respect under the law, and the rules of sound accounting, the referee finds that

such comparison does not lead to the ascertainment of revenue or net income reasonably attributable to North Carolina, for a number of reasons:

(a) The defendant is admittedly conducting a unitary business which is not susceptible to being broken up into revenue producing components in the manner as sought upon the evidence as presented here. These expenses were not entirely limited to this State in revenue producing results, but were a part of the joint expense, (with expenditures in other States), of producing revenue both in this State, and others, to which such revenue has been allocated, and should be proportionately charged to revenue allocated elsewhere, as well as that allocated to this State.

(b) The amount against which it is sought to balance these so-called actual expenses is merely an averaged revenue arrived at or allocated by a statutory formula. The defendant has not attempted to set up actual revenue in North Carolina against which North Carolina operating expenses, if properly ascertained, could be balanced.

6. The referee is unable to recognize the averaged revenue allocated to North Carolina by the mileage prorate fraction as a proper minuend from which to subtract the supposed actual operating expense which defendant assigns to North Carolina; or the assigned operating expense as a proper subtrahend. The two elements are not brought into proper functional relation for such horizontal comparison. They have been derived by different methods which make then incompatible for such comparison. Complete functional relation could exist only when all the operating expenses of the interstate business touching North Carolina (with which we are dealing), are compared with all the revenue which such expenses earn. A distortion results from taking a frac-

tional part of such operating expenses, supposed to be actual, and subtracting it from averaged revenue allocated to the State by the statute. In this case the distortion is due to still other reasons; the manner in which the fraction of total operating expense assigned by defendant to North Carolina is derived, (mechanical division by a geographical line); and because the expense is thrown out of relation with the revenue it has earned and against which alone it should be balanced. The referee finds that the system ratio, resulting in an averaged operating expense, produces a result more nearly in agreement with the facts, and works no substantial injury to the defendant.

7. The referee finds that the defendant did not include as intrastate revenue, and report as such in its income tax report, the revenue from traffic received from other roads, which was transported by defendant only in North Carolina. This was intrastate revenue in the sense of the statute and should have been accounted for without prorating.

8. When the defendant made its reports to the Commissioner of Revenue, as required by the statute, for the purpose of income tax assessment, which were supposed to be accurate for that purpose, it reported a total loss for the three years under discussion of $1,502,153.05. During this trial other figures were substituted by defendant, claiming a total loss for the period of only $193,890.40. This shows a decrease of $1,308,262.65 in defendant's claim of loss for the period. Of this, $438,346.99 is an admitted failure to allocate to North Carolina the proper averaged part of its revenue in accordance with the statute; $859,734.45 is an overcharge of operating expenses in North Carolina, as to which no detailed explanation is given by the defendant; and $89[illegible] 177.20 represents other overcharges in the original re-

ports. These figures are relatively very large, as applied to the subject with which we are dealing. The percentage of error is 87.1% of the total. It, therefore, shows error to an extent which reflects sharply on the reliability of the figures now furnished by the defendant as being truly representative of the facts.

The larger part of this revision is found in defendant's statement of operating expenses, to which reference is made above, which the defendant proposes to deduct from gross operating revenue, or gross income, in North Carolina.

While the referee does not conceive it to be his duty under the law to find the amount of net income of the defendant in this State, as a new basis for the assessment of the tax in this proceeding, it is, however, pertinent to the inquiry before the court in another aspect, namely: whether the application of the statute produces an unconstitutional result.

The State has produced evidence bearing on the actual net income in North Carolina, and this has, to some degree, been supplemented by like evidence from defendant. The State has introduced evidence tending to show the revenue during selected typical months, and proceeding from this, the revenue from the whole years 1927, 1928, and 1929. This evidence strongly tends to show that this net income, subject to taxation for the respective years over and above the operating expenses which defendant has assigned for these years, was as follows: for the year 1927, ———, for the year 1928, ———, for the year 1929, ———. This evidence has strong support from the evidence above mentioned bearing on North Carolina rates, is more consistent with the whole evidence on the subject, and the referee finds that the figures given are substantially correct. The referee therefore finds that in the respective years there was

much more net income, taxable under the statute and reasonably attributable to North Carolina than was allocated by the statute, and taxed for these years.

9. The referee is compelled to find from the evidence, and does so find, that the defendant has failed to show that the tax imposed is either discriminatory or that the net income upon which it is imposed is substantially less than that which was reasonably attributable to the State of North Carolina during the years in question; and finds that the operation of the statute concerned did not have that effect.

CONCLUSIONS OF LAW

1. The referee finds that the North Carolina statutes under which the tax in this case was imposed upon the net income of the defendant are not unconstitutional *per se*.

2. Construing the statutes under which the tax was imposed, the referee concludes that the application of the "system ratio," or ratio of system expenses to system revenue, is intended thereby, and that such use by the Commissioner of Revenue was proper.

3. Inasmuch as the question here presented relates to the total revenues of the Railroad coming under the application of the taxing law and refers especially to the net income from such revenue, the referee finds that the particular matter of car hire and revenue arising therefrom is a subordinate matter, which as included in the net income does not produce any unconstitutional result in the application of the statute.

4. The operation of the statute upon defendant did not produce any unconstitutional result; did not deprive it of its property unlawfully, and did not deny to it the equal protection of the law, and imposed no unconstitutional burden on interstate commerce. The referee con-

cludes that it did no violence to any clause of the State or Federal Constitution.

5. The referee concludes that the defendant is not entitled to recover the taxes paid by it, or any part thereof.

EXHIBIT "B"

REPORT OF REFEREE.

In the Superior Court of Wake County, North Carolina.

The State of North Carolina on the Relation of A. J. Maxwell, Commissioner of Revenue,

v.

Norfolk & Western Railway Company.

The Railway Company, pursuant to Section 312 of the Revenue Act of 1927 and Section 312 of the Revenue Act of 1929 (which sections are substantially identical), made returns to the Commissioner of Internal Revenue of the State for the years 1927, 1928 and 1929. The returns showed no taxable income. Thereafter, on October 27, 1930, the Commissioner of Internal Revenue made reassessments against the Railway Company, accepting and adopting the amount of gross operating revenue within the State, as shown in the original returns of the Railway Company, but deducted therefrom a sum to represent operating expenses measured by the operating ratio of the Railway Company for business of its entire system within and without the State. By the application of the system operating ratio, the Commissioner of Revenue arrived at a net income within the State and made demand upon the Railway Company for the payment of corporate income tax upon the basis of such net income, ascertained by him. The amounts so demanded were paid under protest as follows:

For the year 1927		
as tax on alleged income	$25,737.70	
Plus interest	3,989.34	$29,727.04
For the year 1928	25,097.32	
Plus interest	2,384.25	27,481.57
For the year 1929	28,225.22	
Plus interest	987.88	29,213.10
		$86,421.71

The protest was overruel after a hearing by the Commissioner and the Railway Company appealed to the Superior Court of Wake County, as provided by statute, demanding the recovery of the amounts so paid under protest, as illegally assessed. The case was referred to the undersigned as Referee. Hearings were held from time to time and evidence introduced by both parties, and a transcript of all the evidence is hereto attached. After the evidence was concluded, the case was fully argued orally and time was given each side to file briefs. The Railway Company filed its main brief, the State its brief and the Railway Company filed a reply brief. Both sides requested in writing specific findings of fact. The copies of the brief and requested findings are filed herewith.

Section 312 of North Carolina Revenue Act, 1927, (and the same numbered section of the Revenue Act of 1929, which is in substantially the same words) prescribe the method of ascertaining the "net revenue" for income tax of railroads which operate within and outside the State, as follows:

"Sec. 312. Railroads and public-service corporation.

"The basis of ascertaining the net income of every corporation engaged in the business of operating a steam

or electric railroad express service, telephone or telegraph business, or other form of public service, when such company is required to keep records according to the standard classification of accounting of the Interstate Commerce Commission, shall be the 'net operating income' of such corporation as shown by their records kept in accordance with that standard classification of accounts, when their business is wholly within this State, and when their business is in part within and in part without the State their net income within this State shall be ascertained by taking their gross 'operating revenues' within this State, including in their gross 'operating revenues' within this State the equal mileage proportion within this State of their interstate business and deducting from their gross 'operating revenues' the proportionate average of 'operating expenses,' or 'operating ratio,' for their whole business, as shown by the Interstate Commerce Commission standard classification of accounts. From the net operating income thus ascertained shall be deducted 'uncollectible revenue,' and taxes paid in this State for the income year, other than income taxes and the balance shall be deemed to be their net income taxable under this act. That in determining the taxable income of a corporation engaged in the business of operating a railroad under this section, in the case of a railroad located entirely within this State, the net operating income shall be increased or decreased to the extent of any credit or debit balance received or paid, as the case may be, on account of car or locomotive hire; and when any railroad is located partly within and partly without this State, then said net operating income shall be increased or decreased to the extent of an equal mileage proportion within this State of any credit or debit balance received or paid, as the case may be, on account of car or locomotive hire."

FINDINGS OF FACT

No. 1. The Railway Company ascertained the gross intrastate revenues and to these added the equal mileage proportion within the State of the interstate business, in accordance with the formula prescribed by the statute as follows:

For 1927	$1,579,850.54
For 1928	1,437,861.41
For 1929	1,410,818.36

The figures are not those which were included in the Railway Company's original returns. The State's Expert Roberts in his testimony pointed out that the Railway Company had not followed the statutory method in arriving at its gross operating revenue and at the hearing before the Referee the Railway Company conceded that the criticism of the State in this respect was correct, and it accordingly filed revised figures substantially larger than those it originally returned, and which are those set forth above. It was conceded by the State on the hearing that those figures correctly represent gross operating revenues of the Railway Company ascertained by using the statutory method.

No. 2. I find that the expense of conducting that part of its business which is done in North Carolina is substantially greater in proportion to the gross operating revenues of the Railway Company in the State than the system ratio of Operating Expenses to Operating Revenues in the years in question.

No. 3. The Railway Company operates a double track main line railway from Tidewater on Hampton Roads at Norfolk, Virginia, westerly across the southern portion of the State of Virgina, and through the mining regions of Virginia and West Virginia to western termini at Cincinnati and Columbus, Ohio. Various single track

branch lines diverge from the main line, including three branches which enter the State of North Carolina; a branch from Lynchburg, Virginia, southward to Durham, North Carolina; a branch from Roanoke, Virginia, to Winston-Salem, North Carolina; and a branch from Abingdon, Virginia, to Elkland, North Carolina; Conrad, Answer 2.

No. 4. The principal commodity carried by the Railway Company is bituminous coal originated on and near its main line in West Virginia and Virginia; 42,000,000 of the 59,000,000 tons of revenue freight carried by the Railway Company in 1929 was coal originated on its lines, of which coal 79% was moved over its main line to its western termini and Tide[illegible] without touching its branch lines. The traffic proportions were relatively the same in 1927-1928; Conrad, Ans. 5.

No. 5. In 1927 density of traffic measured in ton miles per mile of road was as follows: In Ohio the density was 17 times the density of North Carolina; in West Virginia the density was ten times the density of North Carolina; in Virigina the density was four times the density of North Carolina. The density of the system as a whole was seven times the density of North Carolina: Conrad, Ans. 6, Vaughan, Recalled Ans. 7-8. During the years 1927-1929 the gross revenues per mile of road on the system were from 4½ to 5 times greater than the gross revenues per mile of road in the State. (Vaughan Recalled, Ans. 7, Substitute Exhibit A.) Coal traffic constitutes over 80% of the system revenue ton miles and about 50% of the North Carolina revenue ton miles (Conrad Exhibit 3).

No. 6. For operating purposes the lines of the Railway Company are divided into operating districts for which operating statistics are separately kept so far as may be. The Durham Branch from Lynchburg to Dur-

ham is a separate operating district. The branch from Roanoke to Winston-Salem is another separate operating district, and a third operating district is the Pulaski District, from Walton, Virginia, to Bristol, Virginia-Tennessee, from which at Abingdon, Virginia, springs the third branch, the Abingdon Branch of the Railway Company, entering North Carolina and going to Elkland, North Carolina. The density of traffic in 1929 of these operating districts compared with the density of traffic on the system as a whole measured in ton miles per mile of road is as follows:

Durham District_____634,000 ton miles per mile of road
Pulaski District_____769,000 ton miles per mile of road
Winston-Salem
District _____2,228,000 ton miles per mile of road
and System _____7,937,000 ton miles per mile of road

Other years in question are in proportion in this respect; Conrad, Ans. 7.

No. 7. By comparison of the main line traffic only with the traffic of the Durham and Winston-Salem Districts the disparity is greater: in a twelve day test period (the first Thursdays of each month) in 1929 the main line east from Iaeger, West Virginia, in the coal fields to Norfolk shows a density of seven times the density of the Winston-Salem District and thirty times the density of the Durham District. The main line west from Bluefield, West Virginia, to Columbus, Ohio, shows a density of eighteen times the density of the Winston-Salem District and seventy times the density of the Durham District: Conrad, Ans. 8-9.

No. 8. The Railway Company is required by Federal statute to classify and keep its accounts of revenues and expenses in manner and form prescribed by the Interstate Commerce Commission. In its order of 1914 the

the Commission prescribes classification of operating expenses under main heads of general accounts, which are in turn subdivided into primary accounts. Of the general accounts of expense the ones of principal importance are Maintenance of Way and Structures, Maintenance of Equipment, Traffic and Conducting Transportation. Other general accounts, such as those relating to Miscellaneous Operations and General Expense and the like, are inconsiderable. Of total Railway operating expenses, the expense of Maintenance of Way and Structures was in 1927 22.54%, Maintenance of Equipment was 30.51% of total operating expenses, Traffic was 01.92% of total operating expenses and Transportation was 41.59% of total operating expenses, the three principal accounts of Maintenance of Way and Structures, Maintenance of Equipment and Transportaion, to which the studies of the Railway Company in the present case are principally directed, account for 94.64% of total operating expenses on the system: Vaughan, Exhibit A.

No. 9. The Railway Company, by examination of each of the primary accounts of expense, has attributed to the Winston and the Durham Districts either the exact amount of expense actually incurred on those districts, where that was possible, or has allocated to the district its proportion of the system expense measured by freight car mileage or engine ton mileage: Vaughan, Exhibit J, Ans. 12. Of said three general accounts of expense, in the year 1927, 99.75% of Maintenance of Way expense was assigned to the Winston-Salem and Durham Districts, on which the money was actually spent. Of the expense of Maintenance of Equipment .49 of 1% was assigned to those districts, the remainder having been allocated in the proportion of freight car miles and engine ton miles of the system as compared

with the districts. Of expenses under the general account of conducting Transportation, 96.08% has been assigned to said two districts where the expense was actually incurred: Vaughan, Ans. 10.

No. 10. The Winston-Salem District and the Durham District being separate operating districts for which separate operating statistics are available, the total operating expenses of those districts is divided by the Railway Company between the states of Virginia and North Carolina in the proportion of road mileage in each state, the branches being homogeneous in physical characteristics, in operation and in traffic: Conrad, Ans. 18; Vaughan, Ans. 14. The Abingdon Branch being but a relatively unimportant port of the Pulaski operating district, the Superintendent of the District made particular study to assign expenses attributable to the Abingdon Branch operation, which branch expenses were divided between Viriginia and North Carolina in the proportion of road mileage and train operation in the two states: Vaughan Exhibits C and K; Vaughan, Ans. 17.

No.11. Expenses so ascertained as having been actually expended on the branches or allocated thereto and divided between the states through which the branches run on a mileage basis attributable to North Carolina operation, amount in the year 1927 to $1,520,935.32; in the year 1928 to $1,455,623.74 and in the year 1929, to $1,444,704.56. For the years 1928 and 1929, these figures, excluding taxes, are in excess of the North Carolina gross revenues ascertained in the method prescribed by the statute, and for the year 1927, including taxes, are in excess of such revenues. Vaughan Sustitute Exhibit B; Vaughan Recalled, Ans. 4-5.

No. 12. The ratio between the expense attributable to North Carolina operation and North Carolina gross revenues is greater than the ratio between system reve-

nues and system expenses, due to the following operating facts:

(1) The expense of Maintenance of Way and Structures does not vary relatively with user of a railroad: 55% of such maintenance does not vary at all with user. The actual expense of maintaining Way and Structures on the Winston-Salem and Durham Branches in North Carolina for 1927 is $347,524.00: Conrad, Ans. 9. (Substitute Conrad Exhibit 7.) If the method adopted by the State is used a figure of $223,706.00 results from taking the percentage of system Maintenance cost to total system Revenue, which percentage is 14.16% (substitute Conrad Exhibit 7), and applying that percentage to North Carolina Gross Revenues.

(2) Transportation expenses do not vary proportionately with traffic. Enginehouse expenses are lower per engine unit handled as the number of engines handled increased. Train dispatching and telegraph expenses are lower per unit on double track main line because the effort and the expense of the employees is spread over a larger number of train units and because automatic block signal devices lower the service cost per train unit: Conrad, Ans. 10.

(3) The grades on the North Carolina branches are more numerous and greater than the main line grades. As a result, on the Winston-Salem Branch a large Mallet locomotive hauls a maximum of 2,000 tons of freight as compared with a haul of 7,800 to 10,100 tons of freight for the same class of engine on the main line; on the Durham District a small Mallet locomotive hauls a maximum of 1,500 tons of freight as contrasted with the 7,500 tons that a locomotive of the same size handles on the Norfolk District: Conrad, Ans. 11. Engines of the same size haul from three to five times more tonnage on the main line than on the North Carolina Branches. Con-

rad, Ans. 12. Coal consumption per 1,000 gross ton miles is on Durham Branch 312.7 pounds, on Winston-Salem Branch 307.1 pounds, and on system 135.1 pounds: Conrad, Ans. 13. The system as a whole on the average hauls 2½ times as much tonnage per train as on the North Carolina districts and with 3/7s of the fuel consumption on those districts. (Conrad, Ans. 12.)

(4) Because of operating conditions mentioned and lighter traffic and tonnage, the cost of wages of enginemen and trainmen and the cost of fuel per 1,000 gross ton miles is as follows: Winston-Salem Branch 64½ cents, system 25.84 cents. Wages of trainmen and enginemen and cost of fuel are alone about 40% of the total system expense of conducting transportation (Vaughan, Ans. 3a) and on the Carolina branches these costs alone are about 2½ times greater than the average of such costs for the system. If this factor of cost had been the same on the Winston-Salem Branch as on the system, wages and fuel would have cost $256,000.00 less in the year 1929. Conrad; Ans. 13.

(5) The cost of Maintenance of Equipment, that is both locomotives and cars, is relatively higher on the North Carolina Branches because more engines and more cars are, due to grades and lighter loading of cars, required to haul the same amount of freight than on the system. The average loading of coal per car on the system is 60.7 tons and on the North Carolina Branches is 52.6 tons. The average loading of other merchandise per car on the system is 27.6 tons and on the North Carolina Branches 22.6 tons; Conrad, Ans. 14-15.

(6) On the system there is hauled 2.6 times more merchandise (other than coal) per mile of road than in North Carolina. As to coal, the average revenue per car mile is in North Carolina 26.3 cents and on the system 31.56 cents. In short, on all freight traffic the

Railway's revenue per gross ton mile (weight of car and contents) is greater than in North Carolina, and yet on the system it hauls said traffic at less cost than it does in North Carolina: Conrad, Ans. 16.

(7) The traffic on the Abingdon Branch is relatively inconsiderable. A study made in August, 1930, shows that freight car miles per mile of road on the Abingdon Branch was 15.6 as compared with the system of 717.5.

(8) Passenger revenues per train mile on the system are for the same expenditure about twice the revenues per train mile in North Carolina and passengers per train mile on the system are about three times the passengers per train mile in North Carolina: Conrad, Ans. 20.

CAR HIRE

In view of the foregoing findings of fact, the Referee is of the opinion that it is unnecessary to consider the Care Hire item, and besides it was admitted that the amount involved in that item was so small that it could not affect the result.

CONCLUSIONS OF LAW.

The Railway Company admits that the statute is on its face constitutional, and that the burden is upon it to show that the application of the statute, as made by the State, makes it liable to the payment of an income tax when it has no taxable income and works an unreasonable burden upon it. It is conceded by the State that if it is shown by competent evidence that the Railway Company was not liable for the income taxes for 1927, 1928 and 1929 which were paid under protest, it may recover them back. The State concedes that if the Railway Company can show that it in fact had no taxable income, then although the use of the statutory formula produced an

apparent net income, the tax would be illegally imposed. But the State contends that the Railway Company has failed to carry the burden which the law places upon it.

(A) It is conceded by both the Railway Company and the State that it is practically impossible to ascertain the gross revenue on interstate business by undertaking to arrive at the revenue attributable to the State on each interstate shipment. The State concedes that the gross income, as submitted at the hearings, correctly represents the gross income according to the statutory formula, and the Railway Company concedes that the statutory allocation of gross revenue is approximately correct. (B)

(C) The State contends that the actual gross operating revenue is larger than that produced by the use of the statutory formula, that the level of rates in the "Southern" territory, which embraces the branch lines running into the State is greater than the level of rates on the system, most of which is in the official territory but the State submits no data by which a finding could be made as to how much greater the "Southern" level is or how much greater the actual revenue is than the amount produced by the use of the statutory formula. (D)

(E) The Railway Company denies that the level of rates is higher—denies that the actual revenue is greater than the revenue produced by the use of statutory formula, but it accepts the gross revenue as ascertained by the statutory formula as approximately correct. The State contends that having accepted this as correct and not attacking this part of the formula, the Railway Company is precluded from attacking the part of the statute which prescribes the method of ascertaining operating expenses, and that the Railway Company is precluded from showing that the operating expenses which the State arrived at by the system ratio are not approximately cor-

rect—that under the circumstances it will not be permitted to show that operating expenses are grossly and unreasonably small. (F)

(G) The State in its brief (page 11), says that the burden is upon the defendant not only to show "actual operating expenses properly attributable to North Carolina, but actual revenue reasonably attributable thereto," and on page 22 of its brief, it states that "the defendant has all along contended that it is impossible to show actual revenue in North Carolina by evidence. We think it is true."

The State takes the position that the Railway Company cannot compare allocated or averaged gross revenues arrived at by the use of the formula with actual operating expenses shown by evidence, for the purposes of finding net taxable income—that this produces a "bastard product" (p. 14). If this is a sound position, and it is impossible to show actual revenue in North Carolina by evidence, then a taxpayer is precluded from showing that the statute works an unconstitutional result. The Referee is of the opinion that this is not a sound position. The Court will assume that the gross revenue arrived at by the use of the formula is approximately correct until the contrary is shown and no evidence was offered to show that this gross revenue was not approximately correct. The Referee is of the opinion, as asserted by the State, that "the burden is upon the defendant to establish as near as it may do so, actual operating expenses in this State sufficient to absorb revenues" (State brief, p. 12), and that the Court "will go behind the statute to see whether an unconstitutional result is produced by its application, to see whether the defendant is taxed on income in North Carolina, which it did not have." (State brief, p. 13.)

The Referee is of the opinion that if the Railway

Company could show that the amount attributable to it as gross revenue by the use of the statutory formula of the equal mileage proportion within the State of its interstate business did not produce a result approximately correct, but was grossly and unreasonably excessive, then the statutory method must fall.

Likewise, if the Railway Company could show that the method prescribed for ascertaining the operating expenses to be deducted from the gross revenue did not produce a result approximately correct but was grossly and unreasonably small, then the statutory method must fall. (H)

(I) The method used by the State in arriving at the operating expenses is by the application of the system ratio of expenses to gross operating revenues, and this is on the assumption that the expense of earning each dollar within the State is the same as the expense of earning each dollar over the system.

The Railway Company contends that as it has no part of its main line in the State, and has only relatively thin branch lines in the State, the system "operating ratio" does not produce anything approximately approaching "operating expenses" within the State, and therefore, the method employed by the State may be discarded and that the language of the statute "the proportionate average of operating expenses" is not synonymous in meaning with the language "operating ratio" used in the statute, and the intent of the State is (1) to ascertain the proportionate average of operating expenses from which the revenue within the State comes, or (2) to use the system operating ratio, but as the use of the system operating ratio does not produce a result which even approximates the actual operating expenses within the State, that method cannot be applied, and that the first method may be used in ascertaining the operating expenses within the State to be deducted from gross revenues. The Railway

Company further contends that if the method it employed to ascertain the operating expenses is not authorized by the terms of the statute, that the statute is unconstitutional in that it has shown that the statutory method of system operating ratio used by the State produces a figure which is not approximately correct, and the Railway Company contends that it has shown the actual expenses within the State with approximate accuracy. The State has no right to collect an income tax unless authorized by statute, and in ascertaining the amount of tax due, it must follow the method prescribed by the Legislature, and the statutory formula must be followed by the taxing authorities. In this case the statutory formula of "equal mileage proportion" within the State of its interstate business is clear and specific as to gross revenue. While the State contends that the statutory method of ascertaining gross revenue does not produce the exact gross revenue and it offers evidence tending to show that the gross revenue was probably larger than the amount produced by the use of the formula (though no data was furnished by which any amount of alleged excess could even be approximated), the State cannot abandon the statutory method, as this is the only lawful method of finding gross revenue. The method was adopted by the State on the theory that it will produce an approximately true result. (J)

(K) The Railway Company undertakes to prove that the State operating ratio is very much higher than the system operating ratio.

Mr. Roberts, the only witness for the State on this point, referring to the testimony of the Railway witnesses, Vaughan and Conrad, as to the operating expenses of the North Carolina branches, said (R. 45): "I think their figures may be accepted at face value without being seriously misleading as respects the relation of operating expenses on the branch lines to those on the main lines of

the system. On a unit basis, the branch line expenses are unquestionably the higher, principally due to relatively lighter traffic density, and operating obstacles in the way of grades and curves, which are excessive on the branches as compared with the balance of the system." And he further testified (R. 103): "It has been shown that the branch line expenses are relatively higher than the average for the system," and the Railway contends that the ratio of expenses to earnings on the North Carolina branches of the Railway is so greatly in excess of the system ratio as to result in a showing of income where no income exists or income substantially in excess of the reality, and that the statutory formula of system operating ratio has produced a fictitious income, an income derived from the result of operations outside of the State. (L)

(M) In dealing with matters of this kind, absolute accuracy is generally impossible, and accordingly the Legislatures have adopted statutory methods for arriving at the amounts to be taxed and these methods have been upheld by the courts whenever the results produced are approximately correct, but if the plan pursued is arbitrary and the consequent valuation on income upon which the tax is assessed grossly excessive, it cannot be enforced.

In Southern Railway Company v. Kentucky, 274 U. S. 76, a State franchise tax was laid upon the intangible property of the Railway Company within the State. The statutory method was to capitalize the net operating income of the railroad's entire system and assign to Kentucky its mileage proportion of that amount after deduction of tangible property otherwise taxed. The amount of the tax in suit was attributable to the lines of the Southern Railway in Kentucky, a Kentucky subsidiary of the Virginia corporation, Southern Railway Company, but the operating income of the entire system was used for capi-

talization and division on the statutory mileage basis. The tax was declared invalid, the Supreme Court observing:

"The operating results of the system compared with those of the Southern Railway Company in Kentucky show that, on the basis of valuation adopted by the State, the average value per mile of the lines of that company is very much less than the average value per mile of the system. If taken separately it is clear that, because of lack of net earnings, no substantial intangible elements of value could reasonably be attributed to the railroad of that company. In order to justify the increases made, there would have to be attributed to these lines large amounts from system earnings.

"And as the direct earnings per mile of the lines of that company are so much less than the average for the system, it is plain that the amount adjudged to have been omitted was arbitrarily excessive and included values of system property beyond the limits of Kentucky." (N)

(O) The Refere concludes from the facts found that the statutory formula of Section 312 of the Revenue Acts of 1927 and 1929, providing for the application of the system ratio of operating expenses to earnings, puts an unreasonable burden on the Railway Company, in that the Railway Company has shown, as appears from the findings of fact, that the use of this method of ascertaining the operating expenses attributable to the State does not produce a result approximately correct—that the expenses of the operation of the branch lines in the State in the years 1927, 1928 and 1929, were greater than the gross operating revenues during each of those years.

The Referee therefore, concludes that the Railway Company is entitled to recover from the State the amounts paid by it under protest as income taxes in each

of said years, with interest thereon from the date of payment. (P)

J. CRAWFORD BIGGS,
Referee.

Jannary 31, 1934.

This cause came on for hearing at June Term, 1934, of the Superior Court of Wake County, before his Honor, Henry A. Grady, Judge Presiding, upon plaintiff's objections and exceptions to the Report of J. Crawford Biggs. Esq., and after hearing thereon, it was agreed that the Court might render judgment out of the County of Wake and out of the Seventh Judicial District, with the same effect as if entered at term time in Wake County, and on December 28, 1934, Judge Grady filed in the office of the Clerk of the Superior Court of Wake County his findings of fact and judgment as follows:

FINDINGS OF FACT AND JUDGMENT

North Carolina—Wake County.
In the Superior Court.

Before HENRY A. GRADY, J., at Chambers, in Raleigh, N. C.

A. J. Maxwell, Commissioner of Revenue for the State of North Carolina

v.

Norfolk & Western Railway Co.

This cause came on for hearing at the June Term, 1934, of Wake County Superior Court, upon exceptions filed by the plaintiff to the Report of Hon. J. Crawford Biggs, Referee; and it was agreed that the Court might review the evidence, find the facts, pass upon the exceptions filed, and enter Judgment out of the County, and

out of the District, to have the same effect as if entered at Term time in Wake County.

After argument of counsel, and a review of the evidence and exceptions filed, the Court finds the following facts:

1. Section 312 of the N. C. Revenue Act, 1927 (and the same numbered section of the Revenue Act of 1929, which is substantially in the same words) prescribes the method of ascertaining the "net revenue" for income tax for railroads which operate in part in this State and in part in other states. That part of the section which is applicable to the case at bar is as follows:

"When their business is in part within and in part without the State their net income within this State shall be ascertained by taking their gross operating revenues within this State, including in their gross operating revenues within this State the equal mileage proportion within this State of their interstate business and deducting from their gross operating revenues the proportionate average of operating expenses, or operating ratio, for their whole business, as shown by the Interstate Commerce Commission standard classification of accounts."

2. The defendant, Norfolk & Western Railway Company, made its returns for the years 1927, 1928 and 1929 to the Commissioner of Revenue, the plaintiff in this action, which returns showed as gross operating revenue within the State a sum computed by an approximate method to produce equal mileage proportion within the State of the revenues of the defendant company, which operates lines both within and without the State. From the gross operating revenue thus computed the Railway Company deducted, in order to find net income within the State, the estimated expenses attributable to operation within the State of North Carolina. As the State expenses, under this method of calculation, exceeded the gross operating

revenues within the State, no tax was tendered. On October 27, 1930, the Commissioner of Revenue made reassessment against the defendant, accepting and adopting the figures representing gross operating revenue within the State as shown by the original returns of the defendant company; but deducting therefrom a sum to represent operating expenses measured by the operating ratio of the Railway Company for the business of its entire system within and without the State. Under this method of computation the plaintiff Commissioner produced a figure which he claims to represent the net income within the State of North Carolina, and made demand upon the defendant for the payment of said sum. The amount so demanded was paid under protest, and being as follows:

For the year 1927, income tax	$25,737.70
Plus interest	3,989.34
For the year 1928	25,097.32
Plus interest	2,384.25
For the year 1929	28,225.22
Plus interest	987.88
Total amount paid	$86,421.71

The protest of the defendant having been overruled by the Commissioner of Revenue, it prosecuted its appeal to the Superior Court as provided by law, for the recovery of the amount so paid; and in the Superior Court the cause was referred to Hon. J. Crawford Biggs.

To the Report of the Referee no exceptions were filed by the defendant, but numerous exceptions were filed by the plaintiff, Commissioner of Revenue.

3. No question is raised respecting the correctness of the Commissioner's method of computing the gross "operating revenues" of the defendant Railway Company under the statute in question; but the defendant assails

his method of computing the "gross operating expenses" or "operating ratio," which, under the statute, is to be deducted from the "gross operating revenues" in order to ascertain the "net operating income" upon which income taxes are to be paid. Neither is any question raised as to the correctness of the taxes paid by the defendant, if the Commissioner was correct in his interpretation of the statute. The Referee is in agreement with the defendant in its interpretation of the statute, and his decision is up for review in this Court. He concludes that the statutory formula of Sec. 312, Revenue Acts of 1927 and 1929, providing for the application of the system ratio of operating expenses to earnings, puts an unreasonable burden on the Railway Company, in that—the use of this method of ascertaining the operating expenses attributable to the State does not produce a result approximately correct—that the expenses of the operation of the branch lines in the State in the years 1927, 1928 and 1929, were greater than the gross operating revenues during each of those years. It is to be assumed that the Referee meant to say that the gross operating revenues from the North Carolina lines, considered separate and apart from the system, were less than the gross operating expenses within the same territory.

4. In the very able Brief filed by the defendant, it is said:

"There is no disagreement between the parties here on this subject; (referring to the unitary character of the defendant's business) nor is it contended for the railway that the business of transporting particular shipments of freight within, into, out of, and through the State of North Carolina, is not unitary. All of the component factors of effort and expense, such as maintenance of way, of equipment, transportation and the like may be deemed to unite to accomplish the carriage of the particular ship-

ment, which is the service the Railway Company sells." And further, in the same Brief: "We agree with our opponents that where a business not being separable in all its parts, and it being impossible to evaluate with mathematical accuracy the revenue-producing effect of the several factors, whether located in one or in the other, the Court will not permit the fact that the earning factor is located either in one State or the other, or the revenue is captured either in the one State or the other, to be conclusive or controlling, or to deprive either State of its just and fair proportion of the tax on the revenue."

We take then as an admitted fact that the business of the defendant Railway Company is unitary in character.

5. The Court does not understand from the Briefs filed that the defendant undertakes to contest the constitutionality of the North Carolina Revenue statute, in the main; but it does contend that the application of said statute, as construed by the Commissioner of Revenue, works an unreasonable hardship, and puts an unreasonable burden upon the defendant in this particular case. This being its contention, the burden rests upon it to prove the same by competent evidence.

6. The defendant is a common carrier of freight and passengers. Its lines of railway lie partly in North Carolina, partly in Virginia, and also in Maryland, West Virginia, Kentucky and Ohio. It traverses territory differing widely in topographic contour, and from the Mountains to the Sea. Three of its branches penetrate the State of North Carolina, the two principal branches extending southwardly from the Va.-Car. State line to the Cities of Winston-Salem, and Durham, respectively. At each of these termini there are located large factories, cotton mills, hosiery plants, and other enterprises which constantly use the defendant's railroad lines.

Defendant's road is used principally for the transportation of coal, about 80 per cent of its total system tonnage being coal, and about 50 per cent of its North Carolina traffic being coal. The unit gross revenues on coal are less than those on other traffic.

All of defendant's railway lines lie in Official Classification Territory, save the two branches extending from Roanoke, Va., to Winston-Salem, N. C., and from Lynchburg, Va., to Durham, N. C. The Official Territory mileage of the system carries by far the greater proportion of its traffic.

The freight rates in Southern Territory are generally higher than freight rates on similar commodities in Official Territory. The two principal branch lines entering North Carolina operate under the Southern Territory rates and ratings and certain arbitrary rates are published to apply to those lines which occupy relatively high levels.

Generally speaking, the traffic moving over defendant's branch lines in North Carolina is superior in gross revenue quality and moves under rates which are generally higher than those prevailing on the system at large outside the State of North Carolina.

The Railroad's lines outside of North Carolina carry traffic of greater density per mile of road than do the branch lines within the State. The branch lines in North Carolina pass through "inclement" territory, there are greater grades in North Carolina and more curves than throughout the system on an average, although other sections in mountainous regions have similar obstacles to operation.

The unit cost of transportation in North Carolina is greater than the average on the remainder of the system; but the evidence is not conclusive as to what extent this inequality of cost obtains. The defendant contends from

the evidence produced that the Court ought to find certain facts in correspondence with the Findings of the Referee. In respect to the gross operating expenses, and the gross revenues received by the defendant, it may be well to state here, that the profits received by it were largely earned by a series of transactions, beginning in many cases, with manufacture in North Carolina, and ending with sales in some other State. It is impossible to find from the evidence just what proportion of profit the total profit of an entire haul when ending in some other bears to the total profit of an entire haul when ending in traffic, which properly originated in North Carolina, some other State. On the other hand, it is not possible to ascertain the proportion of profit which should be allocated to the North Carolina Branch lines, as distinguished from the total profit of an entire haul, when goods are shipped from other states into Winston-Salem, Durham, or other North Carolina termini.

7. In making the returns the defendant used the statutory formula for determining gross operating revenues, but in determining net revenues disregarded the formula as to deductions for operating expenses and attempted to set up actual operating expenses within North Carolina. The evidence seems persuasive that if the actual gross operating revenues should be determined the amount returned by the defendant would be increased by a much greater proportion than the operating expenses in North Carolina are increased over the operating expenses determined by the use of the statutory formula. These results demonstrate the contention of the plaintiff that his use of the statutory formula in determining both gross revenue and operating expenses of the defendant for the years involved in this action does not work an unconstitutional or unreasonable burden upon the defendant.

8. Upon the question presented for determination by the Court as to whether or not the effect of the statute in question as construed and applied by the Commissioner of Revenue works an unconstitutional or unreasonable burden upon the defendant, it is, therefore, found that the determination of the taxable income due by the defendant for the years 1927, 1928 and 1929 in the way and manner in which said taxable income was determined by the plaintiff does not work an unconstitutional or unreasonable burden upon the defendant, and that the amount of income determined is proper under the statute, and in this respect the findings of fact by the referee are reversed.

Upon the foregoing facts as found by the Court, and upon those facts found by the Referee which are not excepted to, it is now considered by the Court—

Ordered and Adjudged that the defendant recover nothing of the plaintiff in this action, and that the plaintiff have and recover his cost to be taxed against the defendant by the Clerk of the Court.

And the findings of fact and conclusions of law of the referee not inconsistent with this order are affirmed, and the findings of fact and conclusions of law of the referee inconsistent with this order are overruled.

Done at Clinton, N. C., this December 19th, 1934.

HENRY A. GRADY,
Judge Presiding.

The plaintiff excepts to the foregoing Judgment and appeals to the Supreme Court. Notice waived. Appeal Bond fixed at One Hundred Dollars. Plaintiff allowed 40 days to make up and serve Statement of Case on Appeal, and defendant allowed 20 days thereafter to serve counter-case or exceptions. GRADY, Judge.

And thereafter, on the 7th day of January, 1935, the defendant served on the plaintiff and filed in the office of the Clerk of the Superior Court of Wake County its exceptions to the foregoing findings of fact and judgment of Judge Grady and notice of appeal as follows:

EXCEPTIONS AND NOTICE OF APPEAL

(Filed Jan. 7, 1935.)

North Carolina—Wake County.
In the Superior Court.

State of North Carolina on Relation of A. J. Maxwell, Commissioner of Revenue, Plaintiff,

v.

Norfolk and Western Railway Company, Defendant

The defendant, Norfolk and Western Railway Company, excepts to the findings of fact and judgment of his Honor, Henry A. Grady, Judge, filed in this cause in the office of the Clerk of the Superior Court of Wake County on December 28, 1934. The defendant's exceptions and the grounds upon which they are based are as follows:

1. For that the Court says in the concluding sentence of paragraph three of the findings of fact and judgment: "It is to be assumed that the Referee meant to say that the gross operating revenues from the North Carolina lines, considered separate and apart from the system, were less than the operating expenses within the same territory." This assumption is neither a finding of fact nor a conclusion of law and the Referee's statement of the matter referred to therein is supported by the record, is not ambiguous and is not subject to a varying assumption by the Court.

2. For that the Court says in the concluding sentence of Section 4 of the findings of fact and judgment: "We

take then as an admitted fact that the business of the defendant Railway Company is unitary in character." The ground of this exception is that the argument quoted by the Court from the defendant's reply brief to the Referee is not an admission of fact and is not subject to the construction put upon it by the Court. As further ground for said exception, the defendant Railway Company says that the character of its business is well defined by the evidence appearing in the record and there is no evidence to support a finding of fact by the Court that the entire business of the defendant Railway Company is unitary in character. The only argument made to the Court (as distinguished from the argument quoted from the brief to the Referee) will be found on page 31 of the brief of the Railway Company in the following language:

"The Court will observe that the Railway Company's admission that the business of transporting particular shipments of freight within, into, out of and through the State may be regarded as a unitary business in the sense that all of the component factors of expense which go into the carriage of such particular shipments unite to accomplish their carriage, is far from being an admission (as the State says in its present brief, page 8) that 'The Railway's business in its entirety is conducted as a unit.' The mass of the Railway main line traffic nowhere touches the State, and the admission of the Railway Company has no relation to such traffic."

3. For that the Court in Section 5 of its findings of fact and judgment says:

"5. The Court does not understand from the Briefs filed that the defendant undertakes to contest the constitutionality of the North Carolina revenue statute, in the main, as construed by the Commissioner of Revenue, works an unreasonable hardship, and puts an unreasonable burden upon the defendant in this particular case.

This being its contention, the burden rests upon it to prove the same by competent evidence."

The ground of this exception is that the language quoted does not correctly state the contention and position of the defendant. The defendant contends that as applied to its peculiar circumstances, proven of record in this case, the North Carolina revenue statute produces an altogether unconstitutional result, in that net income within the State is ascertained and taxed where no net income in fact exists, or income is attempted to be taxed substantially in excess of the reality. As further ground for this exception, the defendant Railway Company says that this erroneous statement of the defendant's contention and position resulted in the Court's placing upon the defendant a burden of proof greater than that required by law and the facts and circumstances of this case.

4. For that the Court in Section 6 of the findings of fact and judgment finds the following fact: "The unit gross revenues on coal are less than those on other traffic." The ground of this exception is that the Court does not define unit gross revenues on coal and does not find as a fact how unit gross revenues on coal are to be determined. In the absence of a definition of unit gross revenues on coal, this finding of fact is unsupported by any evidence in the record. For further ground of exception to this statement, the defendant says that it is too general in its nature to constitute a proper finding of fact.

5. For that the Court in the fourth paragraph of Section 6 of its findings of fact and judgment finds the following fact: "The freight rates in Southern Territory are generally higher than freight rates on similar commodities in Official Territory." The ground of this exception is that this finding of fact unqualified is not supported by any evidence in the record. A further ground

of exception to this finding is that, even if regarded as true, it is wholly inconclusive upon the ascertainment of gross revenues.

6. For that the Court in the fourth paragraph of Section 6 of its findings of fact and judgment finds the following fact: "The two principal branch lines entering North Carolina operate under the Southern Territory rates and ratings and certain arbitrary rates are published to apply to those lines which occupy relatively high levels." The ground of this exception is that this finding of fact unqualified is not supported by any evidence in the record. A further ground of exception to this finding is that, even if regarded as true, it is wholly inconclusive upon the ascertainment of gross revenues.

7. For that in the fifth paragraph of Section 6 of the Court's findings of fact and judgment, the Court finds the following facts:

"Generally speaking, the traffic moving over defendant's branch lines in North Carolina is superior in gross revenue quality, and moves under rates which are generally higher than those prevailing on the system at large outside the State of North Carolina."

The ground of this exception is that it is not supported by any evidence in the record. A further ground of exception to this finding is that, even if regarded as true, it is wholly inconclusive upon the ascertainment of gross revenues.

8. For that the Court in the first sentence of the seventh paragraph of Section 6 of the Court's findings of fact and judgment, the Court makes the following finding of fact and statement: "The unit cost of transportation in North Carolina is greater than the average on the remainder of the system; but the evidence is not conclusive as to what extent this inequality of cost obtains." The defendant Railway Company does not except to the

finding of fact that the unit cost of transportation in North Carolina is greater than the average on the remainder of the system, but does except to the statement that "the evidence is not conclusive as to what extent this inequality obtains." The ground of this exception is that the statement is not supported by any evidence in the record and is contradicted by evidence in the record of the exact extent of the inequality. For further ground of exception to this statement, the defendant says that the burden did not rest upon the defendant to show the extent of the inequality of cost by conclusive evidence.

9. For that in the third sentence of paragraph seven of Section 6 of the Court's findings of fact and judgment, the Court says: "In respect to the gross operating expenses, and the gross revenues received by the defendant, it may be well to state here, that the profits received by it were largely earned by a series of transactions, beginning in many cases with manufacture in North Carolina, and ending with sales in some other State." The ground of this exception is that the statement is not supported by any evidence in the record and it is apparent that it has reference to some fact situation other than that disclosed by the record.

10. For that in the first sentence of Section 7 of the Court's findings of fact and judgment, the Court says: "In making the returns the defendant used the statutory formula for determining gross operating revenues, but in determining net revenues disregarded the formula as to deductions for operating expenses and attempted to set up actual operating expenses within North Carolina."

The ground of the exception to this statement is that it is not supported by the record, the facts being, as shown by the record, that in making its return the defendant used the statutory formula for determining the gross operating revenue, but ascertained that the use of

the formula for determining deductions for operating expenses produced a fictitious net income and, therefore, the defendant did set up actual operating expenses within North Carolina to show that the net income demanded by the Commissioner as earned in the State has no existence in fact and is derived from the result of operations carried on wholly outside the State.

11. For that in the second sentence of Section 7 of the Court's findings of fact and judgment, the Court says: "The evidence seems persuasive that if the actual gross operating revenues should be determined the amount returned by the defendant would be increased by a much greater proportion than the operating expenses in North Carolina are increased over the operating expenses determined by the use of the statutory formula." The ground of this exception is that the said statement is neither a finding of fact nor a conclusion of law. If this statement is treated as a finding of fact, the defendant Railway Company excepts to it upon the ground that the gross operating revenues can only be determined by the statutory formula. The defendant Railway Company excepts to the statement, if treated as a finding of fact, upon the further ground that there is no evidence in the record showing that if the actual gross operating revenues should be determined by any method other than that fixed by the statute, the amount returned by the defendant would be increased in any amount.

12. For that in the concluding sentence of Section 7 of the Court's findings of fact and judgment, the Court says: "These results demonstrate the contention of the plaintiff that his use of the statutory formula in determining both gross revenue and operating expenses of the defendant for the years involved in this action does not work an unconstitutional or unreasonable burden upon the defendant." The ground of this exception is (1) that

the statement is neither a finding of fact nor a conclusion of law and (2) that, if treated as a finding of fact, there is no evidence in the record to support it, and, if treated as a conclusion of law, it is erroneous.

13. For that in Section 8 of the Court's findings of fact and judgment, the Court says: "Upon the question presented for determination by the Court as to whether or not the effect of the statute in question as construed and applied by the Commissioner of Revenue works an unconstitutional or unreasonable burden upon the defendant, it is, therefore, found that the determination of the taxable income due by the defendant for the years 1927, 1928 and 1929 in the way and manner in which said taxable income was determined by the plaintiff does not work an unconstitutional or unreasonable burden upon the defendant, and that the amount of income determined is proper under the statute, and in this respect the findings of fact by the referee are reversed." If this statement is treated as a finding of fact, the ground of the exception of the defendant Railway Company is that there is no evidence in the record to support it and it is contrary to the uncontradicted evidence in the record; and, if it is treated as a conclusion of law, it is erroneous in that the Court does not conclude as a matter of law that the application of the tax formula to the defendant Railway Company provided by Section 312 of the North Carolina Revenue Act of 1927 and the same numbered section of the Revenue Act of 1929 results in the taxation of income substantially in excess of reality and beyond the taxing jurisdiction, and is, therefore, an unconstitutional denial of due process, is a burden on interstate commerce and is a denial of equal protection of the laws, in violation of the due process clause, the interstate commerce clause and the equal protection clause of the Constitution of the United States.

14. The defendant excepts to the findings of fact and judgment of the Cort upon the ground that it is impossible to determine therefrom in all cases whether a particular finding of fact of the Referee was affirmed or overruled and it is, therefore, impossible to determine which of the findings of fact of the Referee were adopted by the Court as the basis for the Court's conclusions of law.

15. The defendant Railway Company excepts to the findings of fact and judgment of the Court upon the ground that the Court did not sufficiently find the facts upon which to base a conclusion of law as to the constitutionality of Sections 312 of the Revenue Acts of 1927 and 1929, when applied to the defendant upon the facts developed by the testimony presented to the Referee.

16. The defendant Railway Company excepts to the findings of fact and judgment of the Court upon the ground that the Court, over defendant's objection, considered the irrelevant and argumentative testimony of the plaintiff's witness, J. W. Roberts, relating to the Railway Company's gross operating revenues attempted to be determined by other than the statutory formula.

17. The defendant Railway Company excepts to the findings of fact and judgment of the Court on the ground that the Court disregarded the admissions of record made by A. J. Maxwell, Commissioner of Revenue, after hearing the formal exceptions of the defendant, in his findings and ruling upon said exceptions. In his findings and ruling, which appears of record in this case, the Commissioner admitted that after examination and analysis of the income tax returns of the defendant for the years 1927, 1928 and 1929, gross operating revenues had been found in accordance with the method prescribed by the statute; and the Commissioner admitted that his re-assessment of income taxes against the defendant had been

made after careful analysis of the defendant's returns and audit of its accounts by a representative of the State Department of Revenue. Upon this record no issue was open for consideration by the Referee or by the Court of the correctness of ascertainment of defendant's gross operating revenues under the statute.

18. The defendant Railway Company excepts to the findings of fact and judgment of the Court upon the ground that the Court gives no consideration to the following admissions appearing in the testimony of the plaintiff's witness, J. W. Roberts, which were uncontradicted by any other testimony in the record:

"I think their (the Railway Company's) figures may be accepted at face value without being seriously misleading as respects the relation of operating expenses on the branch lines to those on the main lines of the system. On a unit basis, the branch line expenses are unquestionable higher, principally due to relatively lighter traffic density, and operating obstacles in the way of grades and curves, which are excessive on the branches as compared with the balance of the system." (Record, p. ____.)

Again on page 57 he alludes to "higher operating costs experienced on the branch lines." On page 72 Roberts mentions "the high costs of operation on the branch lines serving North Carolina," etc. And finally on page 103 he admits that "it has been shown that the branch line expenses are relatively higher than the average for the system," etc.

19. The defendant Railway Company excepts to the findings of fact and judgment of the Court for that the Court overruled the specific findings of the Referee and failed to affirm and to find as matter of fact Referee's findings numbered 5, 6, 7, 8, 9, 10, 11 and 12. The ground of this exception is that the said specific findings of the Referee are based upon uncontradicted fact ap-

pearing in the record, in substance admitted by the sole witness for the State, and furnished the basis for correct conclusions as to the exact nature of defendant's business and the expense of conducting it within and outside the State, in definite contrast to the artificial and fictitious method of ascertaining such expenses indicated by the income tax statute.

20. The defendant Railway Company excepts to the findings of fact and judgment of the Court upon the ground that the Court overruled the finding of the Referee that the State had submitted no data by which even an approximate finding could be made as to how much the level of rates in Southern Territory is, or how much greater the alleged actual revenue in North Carolina is, than the amount produced by the use of the statutory formulae.

21. The defendant Railway Company excepts to the findings of fact and judgment of the Court upon the ground that the Court overruled the Referee's conclusion of law that gross revenues of the defendant, arrived at by the use of the statutory formula, is approximately correct until the contrary is shown; and in overruling the Referee's finding of fact that no evidence was offered to show that the statutory gross revenue was not approximately correct.

22. The defendant Railway Company excepts to the findings of fact and judgment of the Court on the ground that the Court failed to find as facts and conclude as matter of law the findings of fact and conclusions of law requested by the Railway Company of the Referee.

23. The defendant Railway Company excepts to the findings of fact and judgment of the Court for that the Court did not find as a fact upon the undisputed testimony in the record that the Norfolk and Western Railway Company's system ratio of system expenses to sys-

tem earnings was substantially less than the ratio of North Carolina expenses to North Carolina earnings of the Railway Company, and in not concluding as a matter of law upon such findings of fact that the ascertainment of the Railway Company's net income in North Carolina, pursuant to Sections 312 of the Revenue Acts of 1927 and 1929, by deducting from the gross operating revenues prescribed by said sections the said system ratio, results in producing for taxation in North Carolina substantially more income than said Railway Company there earned and that hence said sections are, as to said Railway Company, unconstitutional in that they contravene the due process, equal protection and interstate commerce clauses of the Constitution of the United States.

NORFOLK AND WESTERN RAILWAY COMPANY, Defendant,

By F. M. Rivinus,
W. W. Coxe,
Burton Craige,
Theodore W. Reath,
Murray Allen,
Its Attorneys.

To the State of North Carolina, on relation of A. J. Maxwell, Commissioner of Revenue, plaintiff in the above-entitled action:

You will please take notice that the defendant, Norfolk and Western Railway Company, excepts to the findings of fact and judgment rendered by his Honor, Henry A. Grady, Judge, filed in the office of the Clerk of the Superior Court of Wake County on December 28, 1934,

upon the grounds above set forth, and appeals to the Supreme Court of North Carolina.

NORFOLK AND WESTERN RAILWAY COMPANY, Defendant,

By E. M. Rivinus,
W. W. Coxe,
Burton Craige,
Theodore W. Reath,
Murray Allen,
Its Attorneys.

Service of the foregoing exceptions and notice of appeal accepted and receipt of copy thereof acknowledged, this 7th day of January, 1935. No rights waived.

STATE OF NORTH CAROLINA on relation of A. J. Maxwell, Commissioner of Revenue, Plaintiff,

By A. A. F. Seawell,
Assistant Attorney-General.

It is agreed that the appeal bond shall be in the sum of $100.00, and that the defendant may have until February 15, 1935, within which to prepare and serve statement of case on appeal, and that the plaintiff may have until March 15th, 1935, within which to prepare and serve counter-statement or exceptions.

This 7th day of January, 1935.

A. A. F. SEAWELL,
Assistant Attorney General.
MURRAY ALLEN,
Of Counsel for Defendant.

STATEMENT OF CASE ON APPEAL.

North Carolina—Wake County.
In the Superior Court.

State of North Carolina On Relation of A. J. Maxwell, Commissioner of Revenue, Plaintiff,

v.

Norfolk and Western Railway Company, Defendant.

This is an appeal from judgment rendered in the Superior Court of Wake County in an action which reached that Court by an appeal by Norfolk and Western Railway Company from an order of the Commissioner of Revenue, overruling the Railway Company's exceptions to a finding by the Commissioner of Revenue of taxable income for the years 1927, 1928 and 1929, and the assessment of tax thereon. The findings of the Commissioner of Revenue, exceptions thereto, the ruling of the Commissioner on such exceptions and the exceptions of the Railway Company to such ruling are set out in full in the record.

When the appeal reached the Superior Court of Wake County, it was entitled "State of North Carolina on relation of A. J. Maxwell, Commissioner of Revenue v. Norfolk and Western Railway Company," as required by statute.

At June Term, 1931, of the Superior Court of Wake County the presiding judge, Hon. G. V. Cowper, referred this cause to Hon. J. Crawford Biggs to hear the evidence and report his findings of fact and conclusions of law.

The following proceedings were had before the Referee:

EVIDENCE OF DEFENDANT, NORFOLK AND WESTERN RAILWAY COMPANY.

GOOCH VAUGHAN, a witness of lawful age, being first duly sworn, testified as follows:

I am assistant to the Comptroller of the Norfolk & Western Railway Company at Roanoke, Virginia, and have been such for twenty years.

I have prepared from records and data in my office figures which reflect and compare the Railway's volume and density of traffic and its revenues per mile of road outside the State for the years 1927, 1928 and 1929 with such volume, density and revenues within the State for the same years, and herewith file same as "Vaughan—Exhibit A," of two sheets. The figures on sheet 1 show that the volume and density of traffic tons one mile per mile of road and revenues per mile of road on that part of the system outside of the State are several times greater than the volume and density of traffic and revenues per mile of road on that portion of the Railway's mileage within the State.

On this Exhibit, i.e., "A," sheet 2, I have also made a comparison between the ratio of expenses to earnings on the system and the ratio of expenses to earnings on the mileage within the State. Roughly, the Exhibit shows that the ratio of expenses to earnings in the State is almost double the system ratio. The system ratio includes not only the expenses of operating in the State, but also the expenses of the many other branch lines outside the State, the ratios of expenses to earnings on which are also much greater than those on the main line. If comparison were made between the ratio of expenses to

earnings on the mileage within the State and that of the main line alone, the disparity would be even greater than that between the State's ratio and the system's ratio, as shown by this Exhibit.

The income tax returns of the Norfolk & Western Railway, which we will hereafter call the "Railway," are prepared under my supervision from data in the Comptroller's office.

I have heard Mr. Conrad's testimony to the effect that operating costs are higher on the Railway's lines entering North Carolina than on the main line and on the balance of the system and the reasons therefor. The method by which the Railway computes its income tax returns for the State produces results that are in harmony with Mr. Conrad's conclusions.

Mr. Conrad's testimony shows that the ratio of expenses to earnings is substantially higher in North Carolina than on the main line and the system as a whole, and our method of computing income returns results in the same conclusions. Roughly speaking, Mr. Conrad's evidence as a whole deals with unit cost, whereas the Accounting Department in computing income returns is dealing with the apportionment of total cost. The fact, however, that my figures do confirm substantially at least what was to be expected from his, indicates that our accounting method of apportioning North Carolina expense produces results sufficiently close to realities for practical purposes.

To illustrate in a general way my statement that our accounting methods produce results in harmony with what was to be expected from Mr. Conrad's testimony, it will be observed from Mr. Conrad's Exhibit 7 that for 1929 the system ratio of expenses to earnings was 56.15%.

This applied to the North Carolina revenues for that year produces the 1929 North Carolina operating expense of $730,228.03 shown on that Exhibit. Now, as shown by my Exhibit A, Sheet 2, the 1929 system transportation costs were 39.21% of all system operating expense, system maintenance of way and structures was 22.47% of all system operating expense and system maintenance of equipment was 31.56% of all system expense. Hence, 39.21% of $730,228.03 would be what the State computes transportation costs to be in North Carolina, and this, as shown on Conrad Exhibit 7, amounts to $286,369.03; 22.47% of said $730,228.03 represents the State's computation of maintenance of way costs in North Carolina, and this, on said Exhibit, is $163,992.44; and 31.56% of said $730,228.03 represents the State's computation of maintenance of equipment expense in North Carolina, and this, as shown by Conrad Exhibit 7, is $230,447.74.

Now, among other things Conrad's testimony shows that train fuel and wages alone, which are a part only of what are classed as "transportation" expenses, are on the Winston District substantially 2½ times larger per gross ton mile than on the system; and on the Durham District are substantially three times larger per gross ton mile than on the system; that the ratio of maintenance of way and structures expense to earnings increases as volume of traffic diminishes and that where train and car load are light, more engines and more cars are required to carry the same volume of traffic. Hence, from these three items alone we would expect to find that the amount of money actually spent in North Carolina for such fuel and wages and for maintenance of way and

equipment was far in excess of the amounts produced by the application of system ratio figures to North Carolina revenues.

Dealing then with the extent to which we would expect to find the North Carolina 1929 transportation expense of $286,369.03, as determined by system ratio, augmented by the actual expense incurred in North Carolina for train fuel and train wages alone, it will be noted that for the system these items of train fuel and train wages constitute approximately, as shown by the 1929 Annual Report of the Railway, 40% of the entire system transportation expense. 40% of the $286,369.03 would produce $114,547.60 as what the system ratio allots for train fuel and train wages in North Carolina. Now, we know definitely and exactly what we spent for train fuel and wages on the branches and districts entering North Carolina and North Carolina's portion of these items, according to our apportionment, is $296,000.00—a difference of approximately $182,000.00 on these items alone, and in a rough way in the neighborhood of what is to be expected, treating train fuel and wages per gross ton mile on the branches entering North Carolina as being roundly 2½ times greater than on the system. In short, to the State's 1929 total expense figure of $730,228.03, there should be added for the cost of train fuel and wages alone something in the neighborhood of $182,000.00.

Another illustration is the Maintenance of Way and Structures expense. There is no reason why there should be any material difference mile per mile in such expense between Virginia and North Carolina. Hence, a mileage division of such expense between the states has been made and North Carolina's portion thereof for the year

1929 is $359,598.40. The system Maintenance of Way ratio as applied to $730,228.03 is for the year 1929 $163,992.44, a difference of $195,605.96 from the actual expense, which is in line with Conrad's testimony that the ratio of Maintenance of Way expense to earnings increases as volume of traffic diminishes. Hence, we would naturally expect to find the State's 1929 figure of $730,228.03 materially augmented by Maintenance of Way expense alone. This $195,605.96 of increased Maintenance of Way expense plus increased expense from train fuel and wages itself makes a difference of roughly $377,000.00.

Again applying Mr. Conrad's testimony to Maintenance of Equipment expense, we expect from Mr. Conrad's Answer 12 to find this item also substantially twice as great as system ratio results, for the reasons that Mr. Conrad has given, namely, that where the train and carload are light, more engines and more cars are required to carry the same volume of traffic, and accordingly using 1929 as an illustration, we find that in our apportionment it is almost twice as great, or as shown by Conrad, Exhibit 7, $174,244.76 more than what the system ratio gives. This $174,244.76 added to the rough figure of $377,000.00 heretofore given would make the increase from train fuel and wages, Maintenance of Way and Maintenance of Equipment alone roughly $551,000.00, and this added to the $730,000.00 of State total 1929 expense makes a figure of over $1,281,000.00; or, from these three items alone, a figure within roughly $163,000.00 of the total expense for 1929 calculated by the Railway.

I will not attempt to carry the illustrations any further, but what I have said is enough to show that our Accounting Department method of apportionment of total ex-

pense is conservative, fair to North Carolina, and in line with what was to be expected from Mr. Conrad's figures.

At this point I would like to state that the exhibits I have prepared and will introduce embody the principles used by us in preparing the income tax returns filed by the Railway with the State for the years 1927 to 1929 inclusive and the preceding years, though since the institution of this suit I have made some corrections and revisions therein as the result of various questions that have been raised. Hence, there is also some difference in the totals as shown on the income returns and the totals of our corrected and revised figures embodied in the exhibits I will hereinafter introduce as Exhibit B. The figures used in preparing income returns were sufficiently accurate to show that a large operating deficit existed in North Carolina, and hence in preparing them we have not been as accurate or gone as much into detail as we have on Exhibit B and the other exhibits prepared to support it.

I have made a study of the statutes of the State of North Carolina, which we will hereafter call the "State," covering the taxation of income of railroads, the methods employed by the State and the Railway respectively in computing the net taxable income of the Railway for the years 1927, 1928 and 1929, and of the differences in results obtained by the State's and Railway's methods respectively so doing.

There is no difference between the State and the Railway in the method of ascertaining gross operating revenues, but the State in arriving at the net taxable income has applied the entire system operating ratio to the gross operating revenues within the State in order to arrive at

the North Carolina operating expenses, whereas the Railway, for the purpose of ascertaining actual expenses, has tried to find the actual cost of earning gross operating revenue within the State. According to our computations, the Railway actually operated at a loss in North Carolina in each of the years 1927, 1928 and 1929, the average difference for each of these years between the Railway's computations of net taxable income and those of the State being, roughly, in the neighborhood of $800,000.00 per year.

There are also minor variances in the methods of calculation that contribute to a portion of said $800,000.00 difference.

There is also a variance between the State and the Railway with respect to the ascertainment of what is known as "Hire of Equipment Balance — Debit or Credit." The State each year includes in its computation of the Railway's net taxable income something over $100,000.00 of Hire of Equipment Credit which the Railway considers is not fairly attributable to North Carolina. This difference of $100,000.00 in the computations of Hire of Equipment Credit Balance is due to the fact that the State takes that proportion of the Railway's total Hire of Equipment Credit Balance that is equal to the ratio between the number of miles in the State and the entire system mileage. In figures, 5.85% of the Railway's operated mileage is in the State, and the State therefore takes 5.85% of the Railway's total hire of equipment credit balance without regard to the territorial sources from which derived, or the relative density of traffic (wheelage) in and outside of the State. The Railway, on the other hand, as explained by Mr. Conrad, apportions both its hire of equipment debits and its hire of equipment credits and therefore its hire of equipment

credit balance among the various operating districts according to the density of traffic on each district, expressed in terms of car mileage or wheelage. This $100,000.00 difference in the assignment of a portion of the Hire of Equipment Credit Balance to the State is included in the $800,000.00 referred to in my answer to the preceding question.

I will describe briefly how the Railway keeps its accounts.

The Railway keeps its accounts in accordance with the Interstate Commerce Commission's Standard Classification of Operating Revenues and Operating Expenses, same being the issue of 1914, effective July 1, 1914, and which remains in force at this date. These classifications divide operating revenues into four grand divisions called "General Accounts," which are in turn composed of thirty-nine smaller divisions, called "Primary Accounts." These four General Operating Revenue Accounts and the 39 Primary Accounts of which they are composed are as follows:

General Accounts for Revenues

I. Transportation—Rail Line (Primary Accounts 101 to 116, inc.)
II. Transportation—Water Line (Primary Accounts 121 to 128, inc.)
III. Incidental—(Primary Accounts 131 to 143, inc.)
IV. Joint Facility—(Primary Accounts 151 and 152)

And operating expenses are by these classifications divided into eight grand divisions or General Accounts, which are in turn composed of 199 smaller sub-divisions called "Primary Accounts." These eight General Oper-

ating Expense Accounts and the Primary Accounts, of which they are composed, are as follows:

General Accounts for Operating Expenses

I. Maintenance of Way and Structures (Primary Accounts 201 to 280, inc.)

II. Maintenance of Equipment (Primary Accounts 301 to 338, inc.)

III. Traffic (Primary Accounts 351 to 359, inc.)

IV. Transportation—Rail Line (Primary Accounts 371 to 420, inc.)

V. Transportation—Water Line (Primary Accounts 431 to 433, inc.)

VI. Miscellaneous Operations (Primary Accounts 441 to 446, inc.)

VII. General (Primary Accounts 451 to 462, inc.)

VIII. Transportation for Investment—Credit (Only one account.)

There are other accounts, the consideration of which is involved in this case.

In addition to the 237 Operating Revenue and Expense Accounts, the "Classification of Income, Profit and Loss, and General Balance Sheet Accounts for Steam Roads" (Issue of 1914, effective on July 1, 1914, herewith filed as an exhibit and still in effect), carrying 126 Primary Accounts. However, there is only need for making specific reference for the purpose of this case to the following accounts:

Income Account 501—Railway Operating Revenues (In which the "Total" operating revenues and expenses are recorded).

Income Account 531—Railway Operating Expenses.

Income Account 503 and 536—Hire of Freight Cars.
Income Account 504 and 537—Rent *from* and *for* locomotives.
Income Account 505 and 538—Rent *from* and *for* passenger-train cars.
Income Account 506 and 539—Rent *from* and *for* floating equipment.
Income Account 507 and 540—Rent *from* and *for* work equipment.
Income Account 508—Joint Facility Rent Income.
Income Account 541—Joint Facility Rents.
Income Account 532—Railway Tax Accruals.
Income Account 533—Uncollectible Railway Revenues.

I will describe briefly what is included under each of the General Operating Expense Accounts.

Account I, to wit, "Maintenance of Way and Structures," covers the expenses of maintaining track, bridges, stations and fixed improvements generally, with the exception of shop machinery, power plant machinery and power sub-station apparatus, the expense of maintaining which is included under Account II, known as "Maintenance of Equipment."

Account II, known as "Maintenance of Equipment," covers expense of maintaining rolling equipment such as cars, locomotives, etc., also the cost of maintaining fixed improvements which are classified as shop and power plant machinery and power sub-station apparatus.

Account III, to-wit, "Traffic," includes the expenses of advertising, soliciting and securing traffic for the Railway and the cost of preparing and distributing tariffs governing such traffic.

Account IV, to-wit, "Transportation—Rail Line," covers expenses of operating trains, including station, train, yard and terminal service, etc.

Account V, "Transportation—Water Line," has no application to the instant case because it covers expenses of operating water lines.

Account VI, "Miscellaneous Operations," covers the expenses of operating dining cars, hotels, stock yards, etc.

Account VII, "General," covers general officers, salaries, clerks and employees in the General Offices, legal, real estate, tax, claim and financial expenses, which are not included in any of the other General Accounts and are common to all of the operating districts of the entire system.

Account VIII, "Transportation for Investment—Credit," represents the expense to the carrier of transporting on regular trains, men engaged in and material for construction.

I will describe briefly what proportion of the expenses of each of the eight above General Operating Expense Accounts is capable of direct assignment to a given operating district and what proportion thereof is apportioned among such districts and the basis of apportionment.

We have made a special study of this matter for the year 1927. We did not make such study for the other years because of the enormous time required to do so, but the results for the other years would not vary substantially from those for the year 1927.

For the year 1927, about 99.75% of Account I, namely the expenses of "Maintenance of Way and Structures," were capable of direct assignment to the three operating districts entering the State on which such expenses were actually incurred.

For the same year, only .49% of Account II, "Maintenance of Equipment," was capable of such direct assignment, the remaining 99.51% of Maintenance of Equipment expense being apportioned among the various operating districts of the Railway on the basis of car mile-

age and locomotive ton mileage of each district, with the exception of the electric locomotive expense on the Pocahontas District, all of which was charged to that district.

Of expense Account III, to-wit, "Traffic," 5.28% is assignable direct and 94.72% is apportioned on a car mileage basis among the various operating districts.

Of Account IV, "Transportation—Rail Line," 96.08% thereof was capable of direct assignment in the year 1927 to the various operating districts entering the State, the remaining 3.92% being apportioned on a wheelage basis, i.e., locomotive ton mile and car mile basis.

All of Account VI, "Miscellaneous Operations," is with respect to the districts entering North Carolina assigned direct. This account, as applicable to North Carolina mileage, is negligible.

Account VII, "General"—15.81% was for 1927 capable of direct assignment and 84.19% apportioned.

All of Account VIII, to-wit, "Transportation for Investment—Credit" is capable of direct assignment.

Just what I mean when I speak of expenses being capable of "direct assignment" to a given district or apportioned or allocated to each district I can explain by illustration: We know, for example, exactly what we spent on the districts entering North Carolina for repairing tracks and structures there located and for fuel on locomotives, wages of trainmen and for station employees and expenses thereon. Our books are so kept as to reflect such of these expenses that were actually incurred there. We therefore say that these expenses are capable of direct assignment to the districts on which they were incurred. As contrasted with this, the equipment such as cars or locomotives used on the districts entering North Carolina as well as that used on other districts traverse the entire system, and cars traverse lines beyond the sys-

tem. All of the traveling or user done by or made of the equipment, which is what makes repairs necessary, is not done or made on any particular district. Therefore, as also explained by Mr. Conrad, we divide the equipment repair bills among all of the operating districts on the basis of the amount of user or traveling on each district, i.e., upon a car mileage or locomotive ton mileage basis. The weight of locomotives particularly varies greatly, and hence with respect to them we consider not only the mileage traveled but the weight of the locomotives.

Q. Of the total expense calculated by the Railway to have been incurred on the Winston and Durham Districts for the years 1927, 1928 and 1929, what part or portion is definitely assignable thereto and what is apportioned or allocated?

A. As above indicated, for the year 1927 99.75% of the expense of Maintenance of Way and Structures and 96.08% of the expenses of transportation were capable of direct assignment. These two items alone constitute, roughly, 66% of the entire expense of operating the Winston and Durham districts. While the expense of Miscellaneous Operations and Transportation for Investment-Credit are also capable of direct assignment, nevertheless as those items constitute such a negligible part of the total operating expense for the year 1927, we have not included them in the 66% above-mentioned.

The remaining 34% of expense, which includes Maintenance of Equipment, Traffic and General, is apportioned among the various operating districts on a car mileage and locomotive ton mileage basis. The expense of maintaining locomotives, which is included under "Maintenance of Equipment" is the only item that is apportioned on a locomotive ton mileage basis. The theory of the apportionment of Maintenance of Equipment expense

upon the car mileage and locomotive ton mileage basis is, as I have above indicated, that the expense of such maintenance is in proportion to the extent of user on each district. The apportionment of General and Traffic expenses is upon a car mileage basis.

I have prepared statements for the years 1927, 1928 and 1929 respectively showing the Railway's revenues from the operation of its mileage within the State, the expense incident thereto, its car hire credit balance and its operating deficit therefrom to which you have referred.

I have and herewith file same as "Vaughan—Exhibit B," composed of three sheets, one for each of said years. I also show the contrast of these items respectively with the State's computations therefor. Briefly, this exhibit shows that according to the Railway's computations it suffered a deficit of never less than $198,749.77 in any of said years, whereas according to the State's figures, the Railway had a net taxable income of never less than $557,718.23 for any of said years.

I will explain the method by which the Railway has determined the amount of operating expenses shown on said exhibit for each of said years respectively.

We first assigned to each the Durham and Winston Districts the Maintenance of Way and Structures and Transportation expenses definitely known to be there actually incurred. This constituted approximately 66% of all the expense on said districts for the year 1927.

We then apportioned to said Winston-Salem and Durham Districts upon the car mileage and locomotive ton mile basis above-mentioned their proportionate part of the Maintenance of Equipment expense, i.e., that part of the system Maintenance of Equipment expenses that was equal to the ratio between car and locomotive ton mile-

age on these districts and the system car and locomotive ton mileage.

We then apportioned to each of said districts upon the basis of the car mileage thereon its proportionate part of all other expenses not capable of direct assignment.

The aggregate of the directly assignable expense plus the expense determined by car mileage or locomotive ton mileage constitutes the total expense of said two districts.

As traffic and transportation conditions on each of the districts respectively are substantially the same throughout the entire length of each district and as 38% of the mileage of the Winston-Salem District lies within the State and 38% of the mileage of the Durham District lies within the State, we then apportioned to the State 38% of the total expense of the Winston-Salem District and 38% of the total expense of the Durham District. For the year 1927 the amount thus apportioned (plus the expense of the Abingdon Branch hereinafter mentioned) is the $1,520,935.32 shown on Exhibit B.

As I have above stated, 66% of the expenses actually incurred on each of the districts is directly assignable thereto and the remaining 34% is assigned on the wheelage basis above mentioned. The maintenance of equipment expense, which comprises roughly 83% of the 34%, is the only considerable item apportioned on the wheelage (i.e., car and locomotive ton mileage) basis. As an illustration of how the wheelage apportionment operates, the Durham District (including both the Virginia and North Carolina portions thereof) which has 5.27% of the total system operated mileage, is charged by the Railway with only 1% of the freight car repairs and 2% of the passenger car repairs; and the Winston-Salem District (including both the Virginia and North Carolina portions thereof), which has 5.43% of the total system operated mileage, is charged by the Railway with only

3% of the freight car repairs and 4% of passenger car repairs, whereas the Norfolk District, which is part of the main line and has 15.42% of the system operated mileage, bears 17% of the total freight car repairs and 24% of the passenger car repairs.

In my foregoing answer I have stated how the expense of the portions of the Winston-Salem and Durham Districts lying in North Carolina have been calculated. Roughly, the proportion of the total operating expense of $1,520,935.32 shown on Exhibit B for the year 1927 was incurred on the Winston and Durham Districts is 91%.

The remaining 9% would, therefore, be made up of the expenses of the Abingdon-Elkland Branch in North Carolina.

I will explain how I have apportioned to North Carolina its proportion of the expense of the Abingdon-Elkland Branch.

In computing the expenses of the Abingdon-Elkland Branch, the Railway for the purpose of this case has been compelled to make a special study. On account of the fact that this branch is a part of the Pulaski operating district, the main line of which extends from Radford, Va., to Bristol, Va., with branch lines, and because the quantum of traffic on the Abingdon Branch is so negligible as compared with that of the balance of the Pulaski District, an operated mileage prorate of the District figures could not be used. Hence, the superintendent of the Radford Division made a special compilation from data in his office of the actual expenses incurred on the Abingdon-Elkland Branch, these figures for the respective years 1927-1929 inclusive being embodied in Exhibit C filed herewith. They represent actual expenses incurred on the Abingdon Branch, and it will be noted that they do not include any portion of car repairs, traffic, general

or miscellaneous operating expenses. The total of the actual expenses thus compiled for the entire branch by the superintendent has been apportioned between Virginia and North Carolina in accordance with the number of miles of said branch lying within the respective states, in order to make the method of apportionment the same as that used for the Winston and Durham Districts. As, however, one of the trains on this branch travels only half of the State's mileage, we have in a separate exhibit, hereinafter to be filed as Exhibit K, apportioned part of the expense shown on Exhibit C upon a train mileage basis, with the exception of station employees and wages of work trains, which are capable of actual assignment to the states where incurred. Such apportionment reduces the State's expense shown in the last line of Exhibit C by the figures shown in the last line of Exhibit K.

I will explain how I made my Hire of Equipment computations shown on Exhibit B.

Our method of arriving at the Hire of Equipment credit balance (hire of freight car item) is as follows: Our records show the actual wheelage (car mileage) of equipment on both the Durham and Winston-Salem Districts. The wheelage of each district was then divided by the wheelage for the entire system in order to arrive at a ratio between the respective districts and the system, and we then assigned to each district the Hire of Equipment shown by this ratio. After assignment was thus made to the Durham and Wiston-Salem Districts respectively of the Hire of Equipment thereon, we then apportioned same between Virginia and North Carolina upon the basis of the operated mileage in each State. In the case of the Abingdon Branch, a special study was made for ascertainment of the car mileage and locomotive ton miles thereon and the total car mileage and locomotive ton miles of that branch was likewise divided

between North Carolina and Virginia on the basis of the operated mileage in each State. The results are shown on Exhibit D herewith filed and composed of four sheets, one for each of the years 1927-1929 and one explanatory sheet. While this Exhibit D contains work service car hire, the amount of that item has not been included in the Hire of Equipment items on Exhibit B because of the State's objection thereto.

I will explain my calculations of uncollectible revenue and taxes shown on Exhibit B.

On Exhibit E herewith filed, we show uncollectible revenues apportioned to North Carolina, our method being simply that we apportion to North Carolina that proportion of the system uncollectbile revenues that is equal to the ratio between the entire system revenue and the North Carolina gross revenue.

With respect to taxes, there is no difference between the State's computations of taxes and the Railway's.

Q. How much of the terminal expenses incurred on the Winston-Salem and Durham Districts are included in the Railway operating expenses (as computed by the Railway) shown on Exhibit B for each of the years 1927, 1928 and 1929?

A. Only 38% of the total terminal expenses on said districts, and in calculating the total terminal expenses incurred on said districts, we have not included any part whatsoever of the terminal expense at Roanoke, the northern terminus of the Winston District, nor any part of the terminal expense at Lynchburg, the northern terminus of the Durham District, the terminal expenses of these northern termini being included in the expense of the main line districts on which Roanoke and Lynchburg are located.

I have prepared exhibits showing the terminal expenses incurred in North Carolina and the amount thereof that

is included in the $1,520,935.32 of operating expenses for 1927, for example, shown on Exhibit B.

These figures are reflected in Exhibits F and G, which I herewith file. The total terminal expenses for both the Winston-Salem and Durham Districts including yard expense and station employees in both Virginia and North Carolina, exclusive of Roanoke and Lynchburg, is $478,628.30 for the year 1927. This $478,628.30 is composed of the item of $301,512.24 station employees' expense shown on Exhibit G, plus the item of $177,116.06, yard expense, shown on Exhibit F.

Of this $478,628.30, the sum of $353,053.43 is actually incurred in North Carolina, i.e., $177,116.06 yard expense at Winston-Salem and Durham (Exhibit F) plus $130,116.24, station employees at Winston-Salem and Durham (Exhibits F and G), plus $45,821.13 (Exhibit G) station employees' expense at other stations in North Carolina.

Notwithstanding that the actual terminal expenses incurred in North Carolina were $353,053.43, the State has on Exhibit B (in the $1,520,935.32 of the expense shown thereon for 1927) only been charged with $181,878.75, or with $171,174.68 less than actual expenses there incurred, said $181,878.75 being 38% of the total district expenses, $478,628.30, above mentioned.

Q. What portion of the $353,053.43 total terminal expense for 1927 actually incurred in North Carolina has not been in your computation shown on Exhibit B included in your calculation of operating expense for 1927?

A. $171,174.68, which is reflected on Exhibit H, column No. 6, which I herewith file, covering each of the years 1927 to 1929, inclusive. On this Exhibit H we have shown the total terminal expense actually incurred in North Carolina for each of the three years in ques-

tion and the amount of such terminal expense for each of said years that is not included in our computations of operating expenses shown on Exhibit B for each of said years.

Q. What proportion of the total terminal expense at Winston-Salem and Durham is freight yard expense?

A. As shown by Exhibit F, the total yard expense at Winston-Salem and Durham (the only points on the Winston and Durham Districts where freight yard expenses occur), excluding station employees, is $177,116.06. This includes, however, both passenger and freight yard expense. We have made a separation of the freight yard expense from the total of passenger and freight and find that as shown for the year 1927 on Exhibit I, which I herewith file, the total freight yard expense for both Winston-Salem and Durham is $160,117.60. Using this figure, we have on Exhibit I compared the freight yard expense incurred on the Durham and Winston Districts by our methods with those of the balance of the system by dividing the freight yard expenses on the Winston-Salem and Durham Districts by the freight car miles on these districts, also making similar computations for the balance of the system. The result expressed in freight yard expense per freight car mile indicates that our method of apportioning terminal expense is not excessive.

I have prepared an exhibit showing for each of the years 1927, 1928 and 1929 a statement showing a comparison between the operating expenses in North Carolina as computed by the Railway, grouped according to the I. C. C.'s classification of General Accounts, and said expenses computed by applying the system ratio and likewise grouped.

I have prepared such a statement which has been filed by Mr. Conrad as a matter of convenience as Conrad Exhibit 7.

I have also prepared an exhibit showing the North Carolina operating expenses for the year 1927 grouped according to the I. C. C.'s classification of eight general expense accounts and showing also what proportion of the total expense for the year each account constitutes, what proportion of assignable expense each constitutes and what proportion of apportioned expense each general account constitutes, and herewith file same as Exhibit J (consisting of 5 sheets), but desire to explain that in preparing this exhibit, I calculated the Abingdon Branch expense upon a car mileage and locomotive ton mileage basis because at the time we did not have available the actual expense of the Abingdon Branch as calculated by the Superintendent of the Radford Division and shown on Exhibit C heretofore filed. The 1927 expenses for the Abingdon Branch aggregating $97,564.36 shown on Exhibit J were calculated on a wheelage basis, which was then the most convenient method of computing expenses for that branch, whereas the actual expense for that year, as shown by the superintendent's later figures and apportioned upon a road mileage basis is $131,504.47, exclusive of equipment (except locomotive repairs), traffic, general and miscellaneous operating expenses; and apportioned upon the train mileage basis shown upon Exhibit K, herewith filed, would be $123,609.70. The total Abingdon Branch figures for 1927, for example, shown on Exhibit J should therefore be increased by $33,940.11 if road mileage apportionment of the expense is used and by $26,045.34 if Exhibit K figures are used. As Exhibit J even with the Abingdon Branch figures calculated on a wheelage basis approximately illustrates what proportion of the total expense is attributed to each of the eight general expense accounts, we did not on account of the expense, labor and time entailed in revising the figures to meet the superintendent's calcula-

tions of actual expenses, deem it necessary to re-prepare the exhibit upon the basis of the actual Abingdon Branch figures.

I did not prepare a similar exhibit for the years 1928 and 1929 on account of the expense and time involved in so doing and because conditions were sufficiently similar in all three years to justify using an exhibit for 1927 as illustrating the situation for all three years.

Exhibit J also shows the total operating expense for 1927 sub-divided into the particular sub-divisions or Primary Accounts to which they respectively belong under the eight General Expense Accounts according to the Interstate Commerce Commission's classification.

I might add in this connection that the operating reports we render to the Interstate Commerce Commission of revenues, operating expenses and income reflect the entire system revenues, operating expenses and income but do not show a separation as between the various operating districts of the system. The Railway's method of calculating North Carolina's revenues is the same as that of the system revenues, with the exception that in calculating system revenues there is no apportionment to be made between states, same being assigned direct.

Q. Are the total operating expenses for the year 1927 shown on Exhibit B made up of detail compiled from Exhibit J?

A. Yes, with the exception that on Exhibit J we computed the Abingdon Branch expenses on a wheelage basis, whereas on Exhibit B this expense was, as I have stated, computed upon a road mileage apportionment of the actual expenses from records in the superintendent's office.

The total operating expense shown on Exhibit J as assignable to North Carolina is_____$1,486,995.21
and adding thereto the difference between the Abingdon Branch expenses assigned to that branch on a wheelage basis and the actual expenses compiled by the Superintendent apportioned upon a road mileage basis _____ 33,940.11

produces a total 1927 operating expense shown on Exhibit B of_____$1,520,935.32

and if we apportion, as shown by Exhibit K, Superintendent Smith's figures upon a train mileage basis, the total 1927 operating expense would be $1,513,040.55.

The total operating expenses shown for 1928 and 1929 have been computed in the same manner as those for 1927, shown on Exhibit J, with the exception that again the Abingdon Branch expenses included in Exhibit B were apportioned upon a road mileage basis from the superintendent's compilation of actual expenditures instead of the wheelage basis shown on Exhibit J.

Q. Mr. Vaughan, you have stated that the Maintenance of Way and Structures expense and the Transportation expense, which is directly assignable to the three North Carolina branches, comprise approximately 66% of the total operating expense for each of the years shown on Exhibit B. Using the $1,520,935.32 operating expense shown on Exhibit B for 1927, what would 66% thereof be?

A. 66% of $1,520,935.32 is $1,003,817.31. In other words, $1,003,817.31 of assignable expense alone is in excess of the $869,431.99 of total operating expense attributed to the State by the system ratio, and as heretofore stated this 66% does not include any expense for equipment repairs.

Reverting to my answer to a former question and to my partial use of train mileage in making the apportionment of Abingdon Branch expenses shown on Exhibit K, I will explain in what respect I have used train mileage in making said apportionment.

As stated by Mr. Conrad, one of the Abingdon Branch trains does not travel the entire North Carolina mileage, and hence such expenses as locomotive repairs—a maintenance of equipment account—and transportation items 392, 401, 394, 397, 399, 400 and 415 shown on Exhibit C would be larger on the Virginia end of the Abingdon Branch than on the North Carolina end. As also explained by Mr. Conrad, on the Durham and Winston Districts the train mileage is in proportion to the road mileage in each State, but on the Abingdon Branch it is not, there being a greater train mileage in Virginia. On account of the very negligible traffic on the Abingdon Branch, the trains are all very light with just a few cars to each train, so that the cost of moving one train is substantially the same as that of moving any other. We have, therefore, as shown on Exhibit K, used a train mileage apportionment for locomotive repairs and the transportation items above mentioned.

As Maintenance of Way and Structures expenses would not vary in proportion to the number of trains, we have continued to apportion these expenses on a road mileage basis, especially because the amount of user on the Abingdon Branch is so slight that it is improbable that there is any difference mile per mile between the Virginia and North Carolina Maintenance of Way costs. The wages of station employees employed in North Carolina and work train wages there incurred were capable of convenient separation and therefore on Exhibit K these wages are those actually incurred in North Carolina. The items of superintendence and dispatching trains we felt were the same per mile of road in North Carolina as in

Virginia and as not varying according to the number of trains, and hence we have continued to apportion these on a road mileage basis. In short, what we have done on Exhibit K is this: We have continued to apportion on a road mileage basis all of the Maintenance of Way expenses shown on Exhibit C (amounting for 1927 to $99,192.70) and also the transportation items of superintendence and dispatching trains. Everything else shown on Exhibit C (with the exception of station employees and wages of work trains) we have on Exhibit K apportioned on a train mileage basis.

In this connection I want to again call attention to the fact that Exhibit C does not cover all of the expenses incident to the operation of the Abingdon Branch. For example, the item of car repairs, which would be a substantial item of the total expense on that branch, is not included thereon. With the exception of the item of superintendence, Exhibit C embraces only expenses that the Superintendent of the Radford Division could definitely say were actually incurred there, and the occasion of preparing Exhibit C was, as before mentioned, the fact that on account of the negligible traffic on the Abingdon Branch, a road mileage or wheelage basis of determining the expense thereof was not approximately typical of conditions on the Pulaski District, of which the Abingdon Branch was a part. Hence, we endeavored to ascertain the expense that we knew was actually incurred on the Abingdon Branch, and this expense is assembled on Exhibit C. We did not bother to include on Exhibit C the items of car repairs, traffic, general or miscellaneous expenses because that exhibit purported to show actual expenses only, and to have added the items of car repairs, traffic, general and miscellaneous would simply have increased the deficit shown on Exhibit B, the figures shown on the bottom line of Exhibit C being carried into the total of expenses shown on Exhibit B.

Q. I notice that on Sheet 4 of your Exhibit J you have a dining and buffet service charge of $816.80 for the year 1927 against the Abingdon Branch. How does this come about?

A. There is no dining or buffet service connected with the Abingdon Branch and that item $816.80 was not actually incurred thereon. The Abingdon Branch, however, is a part of the Pulaski District on which there are six trains that do carry dining cars, and as heretofore stated, in making up Exhibit J, I calculated the Abingdon Branch portion of the Pulaski District expense upon a car mileage basis before I had Superintendent Smith's actual Abingdon Branch expenses embodied in my Exhibit C. Hence, on Exhibit J the $816.80 was charged to the Abingdon Branch as its portion, upon a car mileage basis, of the Pulaski District dining car expense. The $816.80 item is not included in the figures shown on Exhibit B, and while, of course, it is technically incorrect to include this item in Abingdon Branch expense at all, it was so small as not to materially affect the total result, and I left it in rather than revise the entire calculations on Exhibit J, which was a laborious one to make and which produces results sufficiently close to those embodied in Exhibit B to demonstrate the inapplicability of system ratio.

Q. What other taxes than the income tax that is protested in this suit are assessed against the Railway under North Carolina tax laws?

A. Two other taxes—an ad valorem tax and a State franchise tax. The ad valorem tax is upon the Railway's real and personal property and is paid to the counties and municipalities through which the Railway runs. The State franchise tax is measured by the ad valorem values upon which the ad valorem taxes are assessed and is paid to the State. The amounts of these taxes respectively appear on my Exhibit E.

(Signed) GOOCH VAUGHAN.

NORFOLK AND WESTERN RAILWAY COMPANY

Statement of Freight Traffic, showing separation between State of North Carolina, Balance of System, and Entire System, also Gross Railway Operating Revenues. Vaughan Exhibit No. "A"

	North Carolina	Intra-State Balance of System	Total
Calendar Year 1927			
Mileage operated	131.05	2,110.70	2,241.75
Tons	67,775	3,735,111	3,802,886
Tons-one-mile	1,496,434	273,976,454	275,472,888
Tons-one-mile per mile of road	11,419	129,804	122,883
Freight revenue	$65,391.82	$5,266,614.19	$5,332,006.01
Freight revenue per mile of road	$498.98	$2,495.20	$2,378.50
Average haul (Miles)	22.08	73.35	72.44
Gross Railway operating revenues	$107,506.29	$9,090,015.57	$9,197,521.86
Gross Railway operating revenues per mile of road	$820.35	$4,306.64	$4,102.83
Calendar Year 1928			
Mileage operated	131.01	2,110.45	2,241.46
Tons	79,574	3,442,419	3,521,993
Tons-one-mile	1,483,823	257,799,060	259,282,883
Tons-one-mile per mile of road	11,326	122,154	115,676
Freight revenue	$62,428.38	$4,969,633.47	$5,032,061.85
Freight revenue per mile of road	$476.52	$2,354.77	$2,244.99
Average haul (Miles)	18.65	74.89	73.62

Gross Railway operating revenues	$99,469.38	$8,397,625.67	$8,497,095.05
Gross Railway operating revenues per mile of road	$759.25	$3,979.07	$3,790.88
CALENDAR YEAR 1929			
Mileage operated	131.01	2,109.08	2,240.09
Tons	55,305	3,125,108	3,180,413
Tons-one-mile	1,297,140	248,851,772	250,148,912
Tons-one-mile per mile of road	9,901	117,990	111,669
Freight revenue	$58,437.24	$4,845,084.06	$4,903,521.30
Freight revenue per mile of road	$446.05	$2,297.25	$2,188.98
Average haul (Miles)	23.45	79.63	78.65
Gross Railway operating revenues	$91,350.47	$7,987,966.03	$8,079,316.50
Gross Railway operating revenues per mile of road	$697.28	$3,787.42	$3,606.69

Office of Comptroller,
Roanoke, Virginia,
August 3, 1931.

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

Vaughan Exhibit No. "A"

	North Carolina	Inter-State Balance of System	Total
CALENDAR YEAR 1927			
Mileage operated	131.05	2,110.70	2,241.75
Tons	2,862,949	48,180,725	51,043,674
Tons-one-mile	120,652,517	14,628,221,743	14,748,874,260
Tons-one-mile per mile of road	920,660	6,930,507	6,579,179
Freight revenue	$1,093,045.95	$93,567,183.14	$94,660,229.09
Freight revenue per mile of road	$8,340.68	$44,329.93	$42,226.04
Average haul (Miles)	42.14	303.61	288.95
Gross Railway operating revenues	$1,276,498.79	$100,474,179.99	$101,750,678.78
Gross Railway operating revenues per mile of road	$9,740.55	$47,602.30	$45,388.95
CALENDAR YEAR 1928			
Mileage operated	131.01	2,110.45	2,241.46
Tons	2,652,990	47,878,493	50,531,483
Tons-one-mile	113,064,062	14,643,338,455	14,756,402,517
Tons-one-mile per mile of road	863,019	6,938,491	6,583,389
Freight revenue	$1,047,066.80	$91,422,454.87	$92,469,521.67
Freight revenue per mile of road	$7,992.26	$43,318.94	$41,254.15
Average haul (Miles)	42.62	305.84	292.02

Gross Railway operating revenues	$1,206,213.70	$97,243,802.63	$98,450,016.33
Gross Railway operating revenues per mile of road	$9,207.03	$46,077.28	$43,922.27

CALENDAR YEAR 1929

Mileage operated	131.01	2,109.08	2,240.09
Tons	2,664,509	53,867,873	56,532,382
Tons-one-mile	113,614,898	16,366,544,561	16,480,159,459
Tons-one-mile per mile of road	867,223	7,760,040	7,356,919
Freight revenue	$1,047,949.33	$102,400,027.99	$103,447,977.32
Freight revenue per mile of road	$7,999.00	$48,551.99	$46,180.28
Average haul (Miles)	42.64	303.83	291.52
Gross Railway operating revenues	$1,209,144.69	$108,343,290.41	$109,552,435.10
Gross Railway operating revenues per mile of road	$9,229.41	$51,369.93	$48,905.38

Office of Comptroller,
Roanoke, Virginia,
August 3, 1931.

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

	North Carolina	Vaughan Exhibit No. "A" Grand Total Balance of System	Total
CALENDAR YEAR 1927			
Mileage operated	131.05	2,110.70	2,241.75
Tons	2,930,724	51,915,836	54,846,560
Tons-one-mile	122,148,951	14,902,198,197	15,024,347,148
Tons-one-mile per mile of road	932,079	7,060,311	6,702,062
Freight revenue	$1,158,437.77	$98,833,797.33	$99,992,235.10
Freight revenue per mile of road	$8,839.66	$46,825.13	$44,604.54
Average haul (Miles)	41.68	287.05	273.93
Gross Railway operating revenues	$1,384,005.08	$109,564,195.56	$110,948,200.64
Gross Railway operating revenues per mile of road	$10,560.90	$51,908.94	$49,491.78
CALENDAR YEAR 1928			
Mileage operated	131.01	2,110.45	2,241.46
Tons	2,732,564	51,320,912	54,053,476
Tons-one-mile	114,547,885	14,901,137,515	15,015,685,400
Tons-one-mile per mile of road	874,345	7,060,645	6,699,065
Freight revenue	$1,109,495.18	$96,392,088.34	$97,501,583.52
Freight revenue per mile of road	$8,468.78	$45,673.71	$43,499.14
Average haul (Miles)	41.92	290.35	277.79

Gross Railway operating revenues	$1,305,683.08	$105,641,428.30	$106,947,111.38
Gross Railway operating revenues per mile of road	$9,966.28	$50,056.35	$47,713.15

CALENDAR YEAR 1929

Mileage operated	131.01	2,109.08	2,240.09
Tons	2,719,814	56,992,981	59,712,795
Tons-one-mile	114,912,038	16,615,396,333	16,730,308,371
Tons-one-mile per mile of road	877,124	7,878,030	7,468,588
Freight revenue	$1,106,386.57	$107,245,112.05	$108,351,498.62
Freight revenue per mile of road	$8,445.05	$50,849.24	$48,369.26
Average haul (Miles)	42.25	291.53	280.18
Gross Railway operating revenues	$1,300,495.16	$116,331,256.44	$117,631,751.60
Gross Railway operating revenues per mile of road	$9,926.69	$55,157.35	$52,512.07

Office of Comptroller,
Roanoke, Virginia,
August 3, 1931.

NORFOLK AND WESTERN RAILWAY COMPANY

Railway Operating Expenses—Entire Line and North Carolina—Ratio to Gross Operating Revenues.

Vaughan Exhibit No. "A"

	Year 1927			
	Entire Line		North Carolina Including N. C. portion of Abingdon Branch on Basis of Superintendent's Figures	
	Amount	Ratio	Amount	Ratio
Gross railway operating revenues	$110,948,200.64		$1,384,005.08	
Railway Operating Expenses:				
Maintenance of way and structures	15,711,540.40	14.16	347,524.63	25.11
Maintenance of equipment	21,261,404.42	19.16	418,206.37	30.22
Traffic	1,340,033.90	01.21	20,031.22	01.45
Transportation	28,988,768.59	26.13	698,755.49	50.48
Miscellaneous operations	275,429.66	00.25	284.14	00.02
General	2,558,173.40	02.31	38,360.93	02.77
Transportation for Investment-Credit	439,224.74	00.40	2,227.46	00.16
Total	$69,696,125.63	62.82	$1,520,935.32	109.89

RATIO OF EACH CLASS OF OPERATING EXPENSES TO TOTAL OPERATING EXPENSES

Maintenance of way and structures	22.54	22.85
Maintenance of equipment	30.51	27.50
Traffic	01.92	01.32
Transportation	41.59	45.94
Miscellaneous operations	00.40	00.02
General	03.67	02.52
Transportation for Investment-Credit	00.63	00.15
	100.00	100.00

Office of Comptroller,
Roanoke, Virginia,
August 3, 1931.

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

Vaughan Exhibit No. "A"

YEAR 1928

	Entire Line		North Carolina Including N. C. portion of Abingdon Branch on Basis of Superintendents Figures	
	Amount	Ratio	Amount	Ratio
Gross railway operating revenues	$106,947,111.38		$1,305,683.08	
RAILWAY OPERATING EXPENSES:				
Maintenance of way and structures	15,475,724.65	14.47	327,356.59	25.07
Maintenance of equipment	19,933,551.65	18.64	408,012.08	31.25
Traffic	1,360,490.46	01.27	21,306.73	01.63
Transportation	26,608,500.41	24.88	654,208.66	50.10
Miscellaneous operations	245,895.27	00.23	201.89	00.02
General	3,110,151.52	02.91	47,733.07	03.66
Transportation for Investment-Credit	212,618.25	00.20	3,195.28	00.24
Total	$66,521,695.71	62.20	$1,455,623.74	111.49

Ratio of Each Class of Operating Expenses to Total Operating Expenses		
Maintenance of way and structures	23.26	22.49
Maintenance of equipment	29.97	28.03
Traffic	02.04	01.46
Transportation	40.00	44.95
Miscellaneous operations	00.37	00.01
General	04.68	03.28
Transportation for Investment-Credit	00.32	00.22
	100.00	100.00

Office of Comptroller,
Roanoke, Virginia,
August 3, 1931.

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

Vaughan Exhibit No. "A"

YEAR 1929

	Entire Line		North Carolina Including N. C. portion of Abingdon Branch on Basis of Superintendents Figures	
	Amount	Ratio	Amount	Ratio
Gross railway operating revenues	$117,631,751.60		$1,300,495.16	
RAILWAY OPERATING EXPENSES:				
Maintenance of way and structures	14,838,067.14	12.61	359,598.40	27.65
Maintenance of equipment	20,848,612.11	17.72	404,692.50	31.12
Traffic	1,442,058.81	01.23	21,079.37	01.62
Transportation	25,897 415.49	22.02	617,763.86	47.50
Miscellaneous operations	236,800.06	00.20	193.13	00.02
General	2,917,444.11	02.48	44,310.07	03.41
Transportation for Investment-Credit	131,150.56	00.11	2,932.77	00.23
Total	$66,051,247.16	56.15	$1,444,704.56	111.09

Ratio of Each Class of Operating Expenses to Total Operating Expenses		
Maintenance of way and structures	22.47	24.89
Maintenance of equipment	31.56	28.01
Traffic	02.18	01.46
Transportation	39.21	42.76
Miscellaneous operations	00.36	00.01
General	04.42	03.07
Transportation for Investment-Credit	00.20	00.20
	100.00	100.00

Office of Comptroller,
Roanoke, Virginia,
August 3, 1931.

Vaughan Exhibit No. B
Sheet No. 1

NORFOLK AND WESTERN RAILWAY COMPANY

Statement Showing Comparsion of Income Tax Return to State of North Carolina for Year 1927—"As Audited by State" and "As Corrected by N. & W. Ry. Co."

	As Audited by State of North Carolina		As Corrected by N. & W. Ry. Co. (including Abingdon Branch) Based on Superintendent's Figures	
INTRASTATE REVENUES:				
Acct. 101—Freight	$65,391.82		$65,391.82	
Acct. 102—Passenger	22,654.82		22,654.82	
All Other Revenues	19,459.65		19,459.65	
Total Intrastate Revenues		$107,506.29		$107,506.29
INTERSTATE REVENUES:				
Acct. 101—Freight	$1,093,045.95		$1,093,045.95	
Acct. 102—Passenger	84,733.57		84,733.57	
All Other Revenues	98,719.27		98,719.27	
Total Interstate Revenues		1,276,498.79		1,276,498.79
Gross Operating Revenues		$1,384,005.08		$1,384,005.08

DEDUCTIONS:				
Railway Operating Expenses	$869,431.99		$1,520,935.32	
Uncollectible Railway Revenues	802.42		171.75	
Taxes Paid in the State:				
State	10,751.69		10,751.69	
County	82,718.41		82,718.41	
Municipal	9,701.25		9,701.25	
Total Deductions		973,405.76		1,624,278.42
Operating Income Less Deductions		$410,599.32		$240,273.34
Add or deduct any credit or debit balance received or paid on account of car hire:				
503—Hire of Freight Cars	$157,129.36		$39,410.41	
504 and 537—Rent from Locomotives	5,297.58		2,578.01	
505 and 538—Rent from Passenger Cars	1,077.44		464.85	
Total Credit for Car Hire		161,349.50		41,523.57
Net Taxable Income		$571,948.82		$198,749.77

NOTE: For Explanation of Assigning Revenues and Expenses see Sheet No. 4

Office of Comptroller,
Roanoke, Virginia,
April 29, 1931—p/rf

Vaughan Exhibit No. B
Sheet No. 2

NORFOLK AND WESTERN RAILWAY COMPANY

Statement Showing Comparsion of Income Tax Return to State of North Carolina for Year 1928—"As Audited by State" and "As Corrected by N. & W. Ry. Co."

	As Audited by State of North Carolina		As Corrected by N. & W. Ry. Co. (including Abingdon Branch) Based on Superintendent's Figures	
INTRASTATE REVENUES:				
Acct. 101—Freight	$62,428.38		$62,428.38	
Acct. 102—Passenger	17,622.85		17,622.85	
All Other Revenues	19,418.15		19,418.15	
Total Intrastate Revenues		$99,469.38		$99,469.38
INTERSTATE REVENUES:				
Acct. 101—Freight	$1,047,066.80		$1,047,066.80	
Acct. 102—Passenger	65,044.56		65,044.56	
All Other Revenues	94,102.34		94,102.34	
Total Interstate Revenues		1,206,213.70		1,206,213.70
Gross Operating Revenues		$1,305,683.08		$1,305,683.08

DEDUCTIONS:				
Railway Operating Expenses	$812,134.88		$1,455,623.74	
Uncollectible Railway Revenues	424.64		88.71	
Taxes:				
State	10,751.69		10,751.69	
County	86,127.18		86,127.18	
Municipal	11,548.00		11,548.00	
Total Deductions		920,986.39		1,564,139.32
Operating Income Less Deductions		$384,696.69		**$258,456.24**
Add or deduct any credit or debit balance received or paid on account of car hire:				
503—Hire of Freight Cars	$167,672.44		39,988.01	
504 and 537—Rent from Locomotives	4,124.73		2,077.48	
505 and 538—Rent from Passenger Train Cars	1,224.37		520.07	
Total Credit for Car Hire		173,021.54		42,585.56
Net Taxable Income		$557,718.23		**$215,870.68**

NOTE: For Explanation of Assigning Revenues and Expenses see Sheet No. 4

Office of Comptroller,
Roanoke, Virginia,
April 29, 1931—p/rf

Vaughan Exhibit No. B
Sheet No. 3

NORFOLK AND WESTERN RAILWAY COMPANY

Statement Showing Comparsion of Income Tax Return to State of North Carolina for Year 1929—"As Audited by State" and "As Corrected by N. & W. Ry. Co."

	As Audited by State of North Carolina		As Corrected by N. & W. Ry. Co. (including Abingdon Branch) Based on Superintendent's Figures	
INTRASTATE REVENUES:				
Acct. 101—Freight	$58,437.24		$58,437.24	
Acct. 102—Passenger	11,899.03		11,899.03	
All Other Revenues	21,014.20		21,014.20	
Total Intrastate Revenues		$91,350.47		$91,350.47
INTERSTATE REVENUES:				
Acct. 101—Freight	$1,047,949.33		$1,047,949.33	
Acct. 102—Passenger	50,237.87		50,237.87	
All Other Revenues	110,957.49		110,957.49	
Total Interstate Revenues		1,209,144.69		1,209,144.69
Gross Operating Revenues		$1,300,495.16		$1,300,495.16

DEDUCTIONS:				
Railway Operating Expenses	$730,228.03		$1,444,704.56	
Uncollectible Railway Revenues	1,998.26		379.16	
Taxes:				
State	21,503.38		21,503.38	
County	78,873.57		78,873.57	
Municipal	10,693.02		10,693.02	
Total Deductions		843,296.26		1,556,153.69
Operating Income Less Deductions		$457,198.90		$255,658.53
Add or deduct any credit or debit balance received or paid on account of car hire:				
503—Hire of Freight Cars	$166,182.92		$36,302.24	
504 and 537—Rent from Locomotives	2,859.22		1,379.41	
505 and 538—Rent from Passenger Train Cars	986.06		422.77	
Total Credit for Car Hire		170,028.20		38,104.42
Net Taxable Income		$627,227.10		$217,554.11

NOTE: For Explanation of Assigning Revenues and Expenses see Sheet No. 4.

Office of Comptroller,
Roanoke, Virginia,
April 29, 1931—p/rf

Vaughan Exhibit C

NORFOLK AND WESTERN RAILWAY COMPANY

Operating Costs for Abingdon Branch—as Compiled by Superintendent Smith—Grouped According to I. C. C. Classification.

		1927	1928	1929
MW 201	Superintendence	$ 6,047.65	$ 5,664.83	$ 5,827.41
202	Roadway Maintenance	41,075.72	37,366.88	36,933.05
208	Bridges, Trestles and Culverts	13,258.33	9,115.89	15,456.44
212	Ties	26,272.33	23,935.48	29,134.74
214	Rail	1,839.41	907.59	28,170.20
216	Other track material	2,071.89	609.61	4,577.44
220	Track laying and surfacing	277.54	473.84	436.83
221	Right-of-Way fences	595.20	685.52	194.10
225	Crossings and signs	1,933.52	2,387.66	1,291.06
227	Station and Office Buildings	2,884.15	1,824.35	6,182.68
229	Roadway buildings	----------	5.63	45.29
231	Water stations	1,307.61	983.67	441.79
233	Fuel stations	----------	18.89	57.70
235	Shops and engine houses	462.78	69.18	1,209.78
247	Telegraph and Telephone Maintenance	253.03	304.24	109.36
249	Signals and interlockers	23.72	----------	----------
269	Roadway Machines	29.40	----------	----------
271	Small tools and supplies	624.80	665.70	582.10
272	Removing snow, ice and sand	235.62	280.11	292.68
		$ 99,192.70	$ 85,299.07	$ 130,942.65

ME 308 Locomotive repairs	$ 28,447.44	$ 24,063.42	$ 23,279.94
CT 371 Superintendence	$ 3,563.65	$ 3,180.83	$ 3,343.41
372 Dispatching trains	3,078.90	3,399.36	3,134.91
373 Station employees	20,045.08	20,014.67	20,376.85
392 Train enginemen	53,245.88	53,891.49	40,368.18
401 Trainmen			
394 Fuel for locomotives	39,776.45	37,181.42	29,079.57
397 Water for train locomotives	3.90	----------	----------
399 Other supplies for train locomotives	90.00	----------	----------
400 Enginehouse expenses	836.93	829.83	719.20
415 Clearing wrecks	260.13	499.02	65.54
417 Damage to live stock on Railways	27.03	35.50	22.53
	$ 120,927.95	$ 119,032.12	$ 97,110.19
Wages of Work Trains (chargeable to job)	$ 6,582.23	$ 1,212.69	$ 3,601.29
	$ 255,150.32	$ 229,607.30	$ 254,934.07
North Carolina's Proportion 51.54%	$ 131,504.47	$ 118,339.60	$ 131,393.02

Office of Comptroller,
Roanoke, Virginia,
July 30, 1931—rep/fa
(20)

NORFOLK AND WESTERN

Accounting Department

Income Tax Returns to State of North Carolina—Assignment

Line No.		Mileage Made by Equipment (1)	Ratio of Operating District to System (2)
	FREIGHT-TRAIN CAR-MILES, EXCLUSIVE OF WORK EQUIPMENT:		%
1	Lynchburg to Durham	4,824,711	00.78
2	Roanoke to Winston-Salem	17,837,965	02.90
3	Abingdon to Elkland	914,538	00.15
4	Total	23,577,214	03.83
5	Entire System	616,171,189	
	STEAM-LOCOMOTIVE TON-MILES:		
6	Lynchburg to Durham	46,834,126	01.52
7	Roanoke to Winston-Salem	162,548,884	05.28
8	Abingdon to Elkland	16,503,756	00.54
9	Total	225,886,766	07.34
10	Entire System	3,077,494,163	
	PASSENGER-TRAIN CAR-MILES:		
11	Lynchburg to Durham	619,857	01.97
12	Roanoke to Winston-Salem	1,292,177	04.10
13	Abingdon to Elkland	143,520	00.45
14	Total	2,055,554	06.52
15	Entire System	31,499,303	

RAILWAY COMPANY — Vaughan Exhibit No. D

—Roanoke, Virginia — Sheet No. 1.

of "Hire of Equipment" for Year Ended December 31, 1927.

Equipment Revenues Entire System (3)	Equipment Revenues Apportioned to Districts (4)	Ratio of N. C. Mileage to Operating District Mileage (5)	N. C. Proportion of Equipment Revenues (6)
		%	
	$ 20,986.46	37.60	$ 7,890.91
	78,026.57	37.73	29,439.42
	4,035.85	51.54	2,080.08
			$ 39,410.41
$2,690,571.29			
Acct. No. 503			
	1,378.82	37.60	$ 518.44
	4,789.59	37.73	1,807.11
	489.84	51.54	252.46
			$ 2,578.01
$ 90,711.91			
Accts. No. 504 and 537			
	363.45	37.60	$ 136.66
	756.42	37.73	285.40
	83.02	51.54	42.79
			$ 464.85
$ 18,449.24			
Accts. No. 505 and 538			

	WORK SERVICE CAR-MILES:		
16	Lynchburg to Durham	44,143	02.08
17	Roanoke to Winston-Salem	40,521	01.90
18	Abingdon to Elkland		
19	Total	84,664	03.98
20	Entire System	2,128,148	

NOTE: For Assignment of Equipment Rents see Sheet No. 4

Office of Comptroller,
Roanoke, Virginia,
May 4, 1931—p/rf.

2,284.59	37.60	$ 859.01
2,086.89	37.73	787.38
	51.54	
		$ 1,646.39

$ 109,836.18

Accts. No. 507
and 540

NORFOLK AND WESTERN

Accounting Department

Income Tax Returns to State of North Carolina—Assignment

Line No.		Mileage Made by Equipment (1)	Ratio of Operating District to System (2)
	FREIGHT-TRAIN CAR-MILES, EXCLUSIVE OF WORK EQUIPMENT:		%
1	Lynchburg to Durham	4,608,337	00.73
2	Roanoke to Winston-Salem	17,709,045	02.82
3	Abingdon to Elkland	711,828	00.11
4	Total	23,029,210	03.66
5	Entire System	629,265,803	
	STEAM-LOCOMOTIVE TON-MILES:		
6	Lynchburg to Durham	49,755,003	01.67
7	Roanoke to Winston-Salem	160,486,344	05.38
8	Abingdon to Elkland	16,714,884	00.56
9	Total	226,956,231	07.61
10	Entire System	2,984,250,438	
	PASSENGER-TRAIN CAR-MILES:		
11	Lynchburg to Durham	616,585	02.07
12	Roanoke to Winston-Salem	1,141,941	03.84
13	Abingdon to Elkland	149,040	00.50
14	Total	1,907,566	06.41
15	Entire System	29,736,569	

RAILWAY COMPANY — Vaughan Exhibit No. D

—Roanoke, Virginia — Sheet No. 2.

of "Hire of Equipment" for Year Ended December 31, 1928.

Equipment Revenues Entire System (3)	Equipment Revenues Apportioned to Districts (4)	Ratio of N. C. Mileage to Operating District Mileage (5)	N. C. Proportion of Equipment Revenues (6)
		%	
	$ 20,923.23	37.60	$ 7,867.13
	80,826.72	37.73	30,495.92
	3,152.82	51.54	1,624.96
			$ 39,988.01
$2,866,195.57			
Acct. No. 503			
	$1,177.49	37.60	$ 442.74
	3,793.34	37.73	1,431.23
	394.85	51.54	203.51
			$ 2,077.48
$ 70,508.24			
Accts. No. 504 and 537			
	433.24	37.60	162.90
	803.69	37.73	303.23
	104.65	51.54	53.94
			$ 520.07
$ 20,929.38			
Accts. No. 505 and 538			

	WORK SERVICE CAR-MILES:		
16	Lynchburg to Durham	61,920	06.27
17	Roanoke to Winston-Salem	97,644	09.88
18	Abingdon to Elkland		
19	Total	159,564	16.15
20	Entire System	988,001	

NOTE: For Assignment of Equipment Rents see Sheet No. 4

Office of Comptroller,
Roanoke, Virginia,
May 4, 1931—p/rf.

	3,793.99	37.60	$ 1,426.54
	5,978.41	37.73	2,255.65
		51.54	
			$ 3,682.19
$ 60,510.23			
Accts. No. 507 and 540			

NORFOLK AND WESTERN

Accounting Department

Income Tax Returns to State of North Carolina—Assignment

Line No.		Mileage Made by Equipment (1)	Ratio of Operating District to System (2)
	FREIGHT-TRAIN CAR-MILES, EXCLUSIVE OF WORK EQUIPMENT:		%
1	Lynchburg to Durham	4,494,516	00.66
2	Roanoke to Winston-Salem	17,930,007	02.62
3	Abingdon to Elkland	556,140	00.08
4	Total	22,980,663	03.36
5	Entire System	683,273,008	
	STEAM-LOCOMOTIVE TON-MILES:		
6	Lynchburg to Durham	49,455,851	01.59
7	Roanoke to Winston-Salem	162,713,496	05.24
8	Abingdon to Elkland	15,078,588	00.48
9	Total	227,247,935	07.31
10	Entire System	3,106,930,071	
	PASSENGER-TRAIN CAR-MILES:		
11	Lynchburg to Durham	606,891	02.10
12	Roanoke to Winston-Salem	1,091,676	03.79
13	Abingdon to Elkland	161,352	00.56
14	Total	1,859,919	06.45
15	Entire System	28,819,607	

RAILWAY COMPANY Vaughan Exhibit No. D

—Roanoke, Virginia Sheet No. 3.

of "Hire of Equipment" for Year Ended December 31, 1929.

Equipment Revenues Entire System (3)	Equipment Revenues Apportioned to Districts (4)	Ratio of N. C. Mileage to Operating District Mileage (5)	N. C. Proportion of Equipment Revenues (6)
		%	
	$ 18,748.84	37.60	$ 7,049.56
	74,427.22	37.73	28,081.39
	2,272.59	51.54	1,171.29
			$ 36,302.24
$2,840,733.74			
Acct. No. 503			
	777.12	37.60	$ 292.20
	2,561.08	37.73	966.30
	234.60	51.54	120.91
			$ 1,379.41
$ 48,875.50			
Accts. No. 504 and 537			
	353.97	37.60	$ 133.09
	638.83	37.73	241.03
	94.39	51.54	48.65
			$ 422.77
$ 16,855.74			
Accts. No. 505 and 538			

	WORK SERVICE CAR-MILES:		
16	Lynchburg to Durham	34,381	04.67
17	Roanoke to Winston-Salem	16,525	02.24
18	Abingdon to Elkland	----------	----------
19	Total	50,906	06.91
20	Entire System	736,148	

NOTE: For Assignment of Equipment Rents see Sheet No. 4

Office of Comptroller,
Roanoke, Virginia,
May 4, 1931—p/rf.

3,102.62	37.60	$ 1,166.59
1,488.19	37.73	561.49
	51.54	
		$ 1,728.08

$ 66,437.23

Accts. No. 507 and 540

Exhibit No. D
Sheet No. 4

NORFOLK AND WESTERN RAILWAY COMPANY

Income Tax Returns to State of North Carolina Assignment of "Equipment Rents"

The income tax returns as audited by a representative of the State of North Carolina show an assignment to the State of North Carolina of "Hire of Equipment" on a ratio of the operated mileage in the State of North Carolina to the operated mileage for the entire system.

The assignment as made on this exhibit is based on "wheelage," our records indicating the actual wheelage of equipment used on the lines Lynchburg to Durham and Roanoke to Winston-Salem; whilst we had a special report made covering the line from Abingdon to Elkland (for two representative months, i.e., May and October of each of the years 1927, 1928 and 1929 which results have been multiplied by six in order to arrive at the wheelage for the entire years). The wheelage for the several districts was then divided by the wheelage for the entire system in order to arrive at a ratio to be applied to the "Hire of Equipment for the entire system," and make the assignment to each individual district. After assignment was made to the districts traversing the State of North Carolina, we then applied to the amount of "Hire of Equipment assigned to these districts" a ratio based on the percentage that the operated mileage in North Carolina bears to the entire mileage of these districts, in order to determine the apportionment to the State of North Carolina. This method apportions to the State of North Carolina on the basis of the use of the equipment.

Office of Comptroller,
Roanoke, Virginia,
May 4, 1931—p/rf

Vaughan Exhibit "E"

NORFOLK AND WESTERN RAILWAY COMPANY

Uncollectible Railway Revenues Apportioned to the State of North Carolina on Basis of Gross Operating Revenues.

		Amount	N. C. Proportion
		Year 1927	
Railway Operating Revenues:			
Entire System	$110,948,200.64		
North Carolina	1,384,005.08		
Ratio	01.25%	$ 13,740.03	$ 171.75
		Year 1928	
Railway Operating Revenues:			
Entire System	$106,947,111.38		
North Carolina	1,305,683.08		
Ratio	01.22%	$ 7,271.30	$ 88.71
		Year 1929	
Railway Operating Revenues:			
Entire System	$117,631,751.60		
North Carolina	1,300,495.16		
Ratio	01.11%	$ 34,158.32	$ 379.16

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

Statement of Taxes Paid in North Carolina.

YEAR 1927

	Assessment	Taxes Paid	
		Amount	Per Mile
Miles of road owned			130.74
Tangible Property used in Operation (Assessed by State Authorities):			(Average Levy $171.40)
Counties and Municipalities	$ 5,321,778	$ 91,217.86	$ 698
Real Estate not used in Operation:			
Counties and Municipalities	54,067	1,201.80	9
Franchise Tax:	(At One-fifth of One Percent)		
State—based on assessed value of all property	5,375,845	10,751.69	82
Total		$ 103,171.35	$ 789

Vaughan Exhibit "E"

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

Statement of Taxes Paid in North Carolina.

	Year 1928		
	Assessment	Taxes Paid	
		Amount	Per Mile
Miles of road owned			130.74
Tangible Property used in Operation (Assessed by State Authorities):			(Average Levy $180.12)
Counties and Municipalities	$ 5,321,778	$ 96,333.15	$ 737
Real Estate not used in Operation:			
Counties and Municipalities	54,067	1,342.03	10
Franchise Tax:	(At One-fifth of One Percent)		
State—based on assessed value of all property	5,375,845	10,751.69	82
Total		$ 108,426.87	$ 829

Vaughan Exhibit "E"

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

Statement of Taxes Paid in North Carolina.

	Year 1929		
	Assessment	Taxes Paid	
		Amount	Per Mile
Miles of road owned			130.74
Tangible Property used in Operation (Assessed by State Authorities):			(Average Levy $165.76)
Counties and Municipalities	$ 5,321,778	$ 88,212.37	$ 675
Real Estate not used in Operation:			
Counties and Municipalities	54,067	1,354.22	10
Franchise Tax:	(At Two-fifths of One Percent)		
State—based on assessed value of all property	5,375,845	21,503.38	165
Total		$ 111,069.97	$ 850

Office of Comptroller,
Roanoke, Virginia,
August 4, 1931—GV:EH.

NORFOLK AND WESTERN RAILWAY COMPANY

Yard Expense at Winston-Salem and Durham.

		Year 1927	Year 1928	Year 1929
202	Roadway maintenance	$ 7,145.35	$ 4,258.31	$ 10,521.94
208	Bridges, trestles and culverts	9,046.37	1,882.62	3,639.59
212	Ties	24,840.28	9,142.12	12,895.08
214	Rail	1,414.09	384.15	263.24
216	Other track material	4,179.29	1,348.29	1,531.92
218	Ballast	195.20	41.81	209.80
220	Track laying and surfacing	16,116.07	9,200.40	10,564.38
221	Right-of-Way fences		43.68	
225	Crossings and signs	2,142.13	10,109.19	1,880.20
278	Maintaining joint yards and terminals—Dr.	736.95	899.69	7,159.97
279	Maintaining joint yards and terminals—Cr.	23,644.65	11,962.68	15,984.06
	Total	$ 42,171.08	$ 25,347.58	$ 32,682.06
308	Yard locomotive	$ 36,558.85	$ 39,928.93	$ 39,822.51
377	Yardmasters and yard clerks	$ 30,822.54	$ 31,258.39	$ 29,980.43
378	Yard conductors and brakemen	54,766.68	61,116.59	64,185.01
379	Yard switch and signal tenders			1,240.57
380	Yard enginemen	37,582.16	40,335.19	40,155.88
382	Fuel for yard locomotives	17,449.18	18,339.29	18,669.62

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

385	Water for yard locomotives	885.38	278.28	566.10
386	Lubricants for yard locomotives	520.40	640.92	575.55
387	Other supplies for yard locomotives	721.58	459.97	415.01
388	Enginehouse expenses—yard	19,513.18	18,312.71	17,872.72
389	Yard supplies and expenses	8,311.18	7,179.20	7,883.71
390	Operating joint yards and terminals—yard—Dr.	10,512.92	8,438.09	8,990.33
391	Operating joint yards and terminals—yards—Cr.	82,699.07	91,924.06	98,511.45
	Total	$ 98,386.13	$ 94,434.57	$ 92,023.48
	Total Yard Expense (excluding station employees)	$ 177,116.06	$ 159,711.08	$ 164,528.05
	Station employees (Winston-Salem and Durham)	$ 130,116.24	$ 131,653.86	$ 133,335.90
	Total expense at Winston-Salem and Durham	$ 307,232.30	$ 291,364.94	$ 297,863.95
	Amount assigned to N. C. on mileage prorate	$ 116,748.27	$ 110,718.68	$ 113,188.30

Office of Comptroller,
Roanoke, Virginia,
May 16, 1931—rep/rf.

Vaughan Exhibit "G"

NORFOLK AND WESTERN RAILWAY COMPANY

Wages of Station Employees on Winston-Salem and Durham Districts.

	1927	1928	1929
Account 373—Station Employees:			
Total for Winston-Salem and Durham Districts	$ 301,512.24	$ 295,678.63	$ 292,212.35
STATION EMPLOYEES:			
Winston-Salem:			
Agents	$ 9,163.77	$ 9,294.08	$ 9,325.14
Billing Clerks	49,914.62	51,342.50	51,436.82
Warehousemen	24,355.38	23,667.94	24,270.96
Others	14,148.52	14,380.49	14,303.48
	$ 97,582.29	$ 98,685.01	$ 99,336.40
Durham:			
Agents	$ 6,260.00	$ 6,679.90	$ 7,200.00
Billing Clerks	16,537.45	16,657.31	16,889.96
Warehousemen	2,956.06	2,952.74	2,955.96
Others	6,780.44	6,678.90	6,953.58
	$ 32,533.95	$ 32,968.85	$ 33,999.50

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

Other Stations in North Carolina:			
Agents	$ 22,742.79	$ 23,055.30	$ 22,758.60
Billing Clerks	4,346.22	2,877.97	2,967.07
Warehousemen	5,772.44	5,990.54	6,086.53
Others	12,959.68	12,854.55	12,223.46
	$ 45,821.13	$ 44,778.36	$ 44,035.66
Total Station Employees in North Carolina on Winston-Salem and Durham Districts	$ 175,937.37	$ 176,432.22	$ 177,371.56
Amount Assigned to North Carolina	$ 114,574.65	$ 112,357.88	$ 111,040.69

Office of Comptroller,
Roanoke, Virginia,
May 16, 1931—rep/rf.

Vaughan Exhibit "H"

NORFOLK AND WESTERN RAILWAY COMPANY

Statement of Yard and Terminal Expenses in North Carolina on the Winston-Salem and Durham Districts.

	Total for Winston-Salem and Durham District (1)	Expenses Actually Incurred at Winston-Salem and Durham (2)	Expenses Actually Incurred on Districts Other than at Winston-Salem and Durham (3)
YEAR 1927:			
M. W. Accounts 202 to 226, inc., 278 and 279	$ 42,171.08	$ 42,171.08	
M. E. Account 308—Yard Locomotives	36,558.85	36,558.85	
C. T. Accounts 377 to 391, inc.	98,386.13	98,386.13	
Total	$ 177,116.06	$ 177,116.06	
C. T. Account 373—Station Employees	301,512.24	130,116.24	$ 45,821.13
Total Expense	$ 478,628.30	$ 307,232.20	$ 45,821.13

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

YEAR 1928:			
M. W. Accounts 202 to 226, inc., 278 and 279	$ 25,347.58	$ 25,347.58	
M. E. Account 308—Yard Locomotives	39,928.93	39,928.93	
C. T. Accounts 377 to 391, inc.	94,434.57	94,434.57	
Total	$ 159,711.08	$ 159,711.08	
C. T. Account 373—Station Employees	295,678.63	131,653.86	$ 44,778.36
Total Expense	$ 455,389.71	$ 291,364.94	$ 44,778.36
YEAR 1929:			
M. W. Accounts 202 to 226, inc., 278 and 279	$ 32,682.06	$ 32,682.06	
M. E. Account 308—Yard Locomotives	39,822.51	39,822.51	
C. T. Accounts 377 to 391, inc.	92,023.48	92,023.48	
Total	$ 164,528.05	$ 164,528.05	
C. T. Account 373—Station Employees	292,212.35	133,335.90	$ 44,033.66
Total Expense	$ 456,740.40	$ 297,863.95	$ 44,035.66

Vaughan Exhibit "H"

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

	Total Expense Actually Incurred in N. C. on the two Districts (2 plus 3) (4)	Assignment to North Carolina on Mileage Prorate 38% (5)	Difference Not Included in Expense for North Carolina (4 minus 5) (6)
YEAR 1927:			
M. W. Accounts 202 to 226, inc., 278 and 279	$ 42,171.08	$ 16,025.01	$ 26,146.07
M. E. Account 308—Yard Locomotives	36,558.85	13,892.36	22,666.49
C. T. Accounts 377 to 391, inc.	98,386.13	37,386.73	60,999.40
Total	$ 177,116.06	$ 67,304.10	$ 109,811.96
C. T. Account 373—Station Employees	175,937.37	114,574.65	61,362.72
Total Expense	$ 353,053.43	$ 181,878.75	$ 171,174.68

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

YEAR 1928:			
M. W. Accounts 202 to 226, inc., 278 and 279	$ 25,347.58	$ 9,632.08	$ 15,715.50
M. E. Account 308—Yard Locomotives	39,928.93	15,172.99	24,755.94
C. T. Accounts 377 to 391, inc.	94,434.57	35,885.14	58,549.43
Total	$ 159,711.08	$ 60,690.21	$ 99,020.87
C. T. Account 373—Station Employees	176,432.22	112,357.88	64,074.34
Total Expense	$ 336,143.30	$ 173,048.09	$ 163,095.21
YEAR 1929:			
M. W. Accounts 202 to 226, inc., 278 and 279	$ 32,682.06	$ 12,419.18	$ 20,262.88
M. E. Account 308—Yard Locomotives	39,822.51	15,132.55	24,689.96
C. T. Accounts 377 to 391, inc.	92,023.48	34,968.93	57,054.55
Total	$ 164,528.05	$ 62,520.66	$ 102,007.39
C. T. Account 373—Station Employees	177,371.56	111,040.69	66,330.87
Total Expense	$ 341,899.61	$ 173,561.35	$ 168,338.26

Office of Comptroller,
Roanoke, Virginia,
May 20, 1931—rep/rf.

Vaughan Exhibit "I"

NORFOLK AND WESTERN RAILWAY COMPANY

Statement of Freight Yard Expense per Freight Car Mile for Years 1927, 1928 and 1929.

	Total for Durham and Winston-Salem Districts	Balance of System
YEAR 1927:		
Freight Yard Expense	$ 160,117.60	$6,253,290.87
Freight Car Miles	22,662,676	583,508,513
Freight Yard Expense per Freight Car Mile	$ 0.00707	$ 0.01072
YEAR 1928:		
Freight Yard Expense	$ 147,577.01	$6,170,103.24
Freight Car Miles	22,317,382	606,948,421
Freight Yard Expense per Freight Car Mile	$ 0.00661	$ 0.01017
YEAR 1929:		
Freight Yard Expense	$ 148,755.22	$6,203,481.35
Freight Car Miles	22,424,523	660,848,485
Freight Yard Expense per Freight Car Mile	$ 0.00663	$ 0.00939

Office of Comptroller,
Roanoke, Virginia,
August 5, 1931—rep/rf.

Vaughan Exhibit "J"
Sheet No. 1 of 5 sheets.

NORFOLK AND WESTERN RAILWAY COMPANY

Accounting Department—Roanoke, Va.

Statement of North Carolina operating expenses for the calendar year 1927, by primary accounts, and showing separation as between "Apportioned" and "Direct" Charges.

(See Note on Sheet No. 4.)

GRAND TOTAL

M.W. MAINTENANCE OF WAY & STRUCTURES:	Durham District	Win.-Salem District	Abingdon Branch	Total
201 Superintendence	$ 4,391.06	$ 10,524.91	$ 1,129.94	$ 16,045.91
202 Roadway Maintenance	11,485.73	24,221.43	3,502.07	39,209.23
203 Roadway—Depreciation				
204 Underground Power Tubes				
205 Underground Power Tubes—Depreciation				
206 Tunnels and Subways	701.39	.46	236.67	938.52
207 Tunnels and Subways—Depreciation				
208 Bridges, Trestles and Culverts	6,686.10	9,865.85	2,730.42	19,282.37
209 Bridges, Trestles and Culverts—Depreciation	1,204.60	1,063.99	576.68	2,845.27
210 Elevated Structures				
211 Elevated Structures—Depreciation				
212 Ties	30,324.42	35,696.16	4,075.39	70,095.97
213 Ties—Depreciation				
214 Rails	1,234.36	23,969.34	712.32	24,491.38

215	Rails—Depreciation				
216	Other Track Material	4,502.56	13,182.76	872.39	16,812.93
217	Other Track Material—Depreciation				
218	Ballast	2,861.09	11,266.01	716.89	14,843.99
219	Ballast—Depreciation				
220	Track Laying and Surfacing	33,202.14	27,378.69	2,760.05	63,340.88
221	Right of Way Fences	508.93	202.94	547.55	1,259.42
222	Right of Way Fences—Depreciation				
223	Snow and Sand Fences, Snow Sheds				
224	Snow and Sand Fences, Snow Sheds—Depr.				
225	Crossings and Signs	1,501.45	1,788.15	200.90	3,490.50
226	Crossings and Signs—Depreciation				
227	Station and Office Buildings	1,937.00	4,721.83	1,356.86	8,015.69
228	Station and Office Buildings—Depreciation	342.00	1,026.00	252.93	1,620.93
229	Roadway Buildings	147.40	602.81	42.05	792.26
230	Roadway Buildings—Depreciation				
231	Water Stations	1,493.98	1,173.16	325.49	2,992.63
232	Water Stations—Depreciation			21.08	21.08
233	Fuel Stations	272.62	889.17	75.95	1,237.74
234	Fuel Stations—Depreciation			15.81	15.81
235	Shops and Enginehouses	809.72	3,300.04	316.81	4,426.57
236	Shops and Enginehouses—Depreciation				
237	Grain Elevators				
238	Grain Elevators—Depreciation				
239	Storage Warehouses				
240	Storage Warehouses—Depreciation				
241	Wharves and Docks				
242	Wharves and Docks—Depreciation				

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

243	Coal and Ore Wharves				
244	Coal and Ore Wharves—Depreciation				
245	Gas Producing Plants				
246	Gas Producing Plants—Depreciation				
247	Telegraph and Telephone Lines	2,281.08	5,231.67	227.64	7,740.39
248	Telegraph and Telephone Lines—Depr.				
249	Signals and Interlockers	515.55	11,593.58	2,206.70	14,315.83
250	Signals and Interlockers—Depreciation				
251	Power Plant Dams, Canal, Pipe Lines				
252	Power Plant Dams, Canal, Pipe Lines—Depr.				
253	Power Plant Buildings				
254	Power Plant Buildings—Depreciation				
255	Power Substation Buildings				
256	Power Substation Buildings—Depreciation				
257	Power Transmission System	.11	.37	34.89	34.41
258	Power Transmission System—Depreciation				
259	Power Distribution System	48.74	139.92	29.45	218.11
260	Power Distribution System—Depreciation				
261	Power Line Poles and Fixtures	35.94	101.08	23.11	160.13
262	Power Line Poles and Fixtures—Depr.				
263	Underground Conduits				
264	Underground Conduits—Depreciation				
265	Miscellaneous Structures				
266	Miscellaneous Structures—Depreciation				

267	Paving			3.97	3.97
268	Paving—Depreciation				
269	Roadway Machines	44.82	1,100.82	207.98	1,353.62
270	Roadway Machines—Depreciation				
271	Small Tools and Supplies	1,463.40	3,071.57	371.67	4,906.64
272	Removing Snow, Ice and Sand	299.29	420.28	40.20	759.77
273	Assessments for Public Improvements		4.68		4.68
274	Injuries to Persons	1,031.47	1,189.73	367.51	2,588.71
275	Insurance	107.33	233.64	42.84	383.81
276	Stationery and Printing	69.82	281.46	15.66	366.94
277	Other Expenses	3.80	1.90	.49	6.19
278	M't'g. Jt. Trk., Yds. and Other Fac.—Dr.	113.40	166.65		280.05
279	M't'g. Jt. Trk., Yds. and Other Fac.—Cr.		**11,023.15**	**328.22**	**11,351.37**
280	Equalization—Way and Structures				
	Total	$109,621.08	$183,387.16	$ 20,542.72	$313,550.96

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

M.W.	Maintenance of Way & Structures:	Apportioned Charges: Durham District	Win.-Salem District	Abingdon Branch	Total
201	Superintendence	$ 92.83	$ 254.71	$ 20.62	$ 368.16
202	Roadway Maintenance				
203	Roadway—Depreciation				
204	Underground Power Tubes				
205	Underground Power Tubes—Depreciation				
206	Tunnels and Subways				
207	Tunnels and Subways—Depreciation				
208	Bridges, Trestles and Culverts				
209	Bridges, Trestles and Culverts—Depreciation				
210	Elevated Structures				
211	Elevated Structures—Depreciation				
212	Ties	.85	2.21	.17	3.23
213	Ties—Depreciation				
214	Rails				
215	Rails—Depreciation				
216	Other Track Material	.01	.02		.03
217	Other Track Material—Depreciation				
218	Ballast				
219	Ballast—Depreciation				

220	Track Laying and Surfacing	3.69	7.37	.96	12.02
221	Right of Way Fences				
222	Right of Way Fences—Depreciation				
223	Snow and Sand Fences, Snow Sheds				
224	Snow and Sand Fences, Snow Sheds—Depr.				
225	Crossings and Signs	1.01	3.02	.17	4.20
226	Crossings and Signs—Depreciation				
227	Station and Office Buildings	5.65	17.70	1.56	24.91
228	Station and Office Buildings—Depreciation				
229	Roadway Buildings	.53	1.60	.14	2.27
230	Roadway Buildings—Depreciation				
231	Water Stations				
232	Water Stations—Depreciation				
233	Fuel Stations				
234	Fuel Stations—Depreciation				
235	Shops and Enginehouses	26.65	69.30	6.34	102.29
236	Shops and Enginehouses—Depreciation				
237	Grain Elevators				
238	Grain Elevators—Depreciation				
239	Storage Warehouses				
240	Storage Warehouses—Depreciation				
241	Wharves and Docks				
242	Wharves and Docks—Depreciation				
243	Coal and Ore Wharves				
244	Coal and Ore Wharves—Depreciation				
245	Gas Producing Plants				
246	Gas Producing Plants—Depreciation				

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

247	Telegraph and Telephone Lines	2.89	6.19	.98	10.06
248	Telegraph and Telephone Lines—Depr.				
249	Signals and Interlockers	31.14	83.90	6.72	121.76
250	Signals and Interlockers—Depreciation				
251	Power Plant Dams, Canal; Pipe Lines				
252	Power Plant Dams, Canal, Pipe Lines—Depr.				
253	Power Plant Buildings				
254	Power Plant Buildings—Depreciation				
255	Power Substation Buildings				
256	Power Substation Buildings—Depreciation				
257	Power Transmission System	.11	.37	.03	.51
258	Power Transmission System—Depreciation				
259	Power Distribution System	.54	1.62	.14	2.30
260	Power Distribution System—Depreciation				
261	Power Line Poles and Fixtures	.51	1.53	.12	2.16
262	Power Line Poles and Fixtures—Depr.				
263	Underground Conduits				
264	Underground Conduits—Depreciation				
265	Miscellaneous Structures				
266	Miscellaneous Structures—Depreciation				
267	Paving				
268	Paving—Depreciation				
269	Roadway Machines		.01		.01
270	Roadway Machines—Depreciation				

271	Small Tools and Supplies	.93	2.80	.23	3.96
272	Removing Snow, Ice and Sand				
273	Assessments for Public Improvements				
274	Injuries to Persons	8.82	19.42	1.67	29.91
275	Insurance				
276	Stationery and Printing	23.32	65.85	5.37	94.54
277	Other Expenses				
278	M't'g. Jt. Trk., Yds. and Other Fac.—Dr.				
279	M't'g. Jt. Trk., Yds. and Other Fac.—Cr.				
280	Equalization—Way and Structures				
	Total	$ 192.46	$ 521.44	$ 42.96	$ 756.86

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

M.W. Maintenance of Way & Structures:	Direct Charges Durham District	Win.-Salem District	Abingdon Branch	Total
201 Superintendence	$ 4,298.23	$ 10,270.20	$ 1,109.32	$ 15,677.75
202 Roadway Maintenance	11,485.73	24,221.43	3,502.07	39,209.23
203 Roadway—Depreciation				
204 Underground Power Tubes				
205 Underground Power Tubes—Depreciation				
206 Tunnels and Subways	701.39	.46	236.67	938.52
207 Tunnels and Subways—Depreciation				
208 Bridges, Trestles and Culverts	6,686.10	9,865.85	2,730.42	19,282.37
209 Bridges, Trestles and Culverts—Depreciation	1,204.60	1,063.99	576.68	2,845.27
210 Elevated Structures				
211 Elevated Structures—Depreciation				
212 Ties	30,323.57	35,693.95	4,075.22	70,092.74
213 Ties—Depreciation				
214 Rails	1,234.36	23,969.34	712.32	24,491.38
215 Rails—Depreciation				
216 Other Track Material	4,502.55	13,182.74	872.39	16,812.90
217 Other Track Material—Depreciation				
218 Ballast	2,861.09	11,266.01	716.89	14,843.99
219 Ballast—Depreciation				

220	Track Laying and Surfacing	33,198.45	27,371.32	2,759.09	63,328.86
221	Right of Way Fences	508.93	202.94	547.55	1,259.42
222	Right of Way Fences—Depreciation				
223	Snow and Sand Fences, Snow Sheds				
224	Snow and Sand Fences, Snow Sheds—Depr.				
225	Crossings and Signs	1,500.44	1,785.13	200.73	3,486.30
226	Crossings and Signs—Depreciation				
227	Station and Office Buildings	1,931.35	4,704.13	1,355.30	7,990.78
228	Station and Office Buildings—Depreciation	342.00	1,026.00	252.93	1,620.93
229	Roadway Buildings	146.87	601.21	41.91	789.99
230	Roadway Buildings—Depreciation				
231	Water Stations	1,493.98	1,173.16	325.49	2,992.63
232	Water Stations—Depreciation			21.08	21.08
233	Fuel Stations	272.62	889.17	75.95	1,237.74
234	Fuel Stations—Depreciation			15.81	15.81
235	Shops and Enginehouses	783.07	3,230.74	310.47	4,324.28
236	Shops and Enginehouses—Depreciation				
237	Grain Elevators				
238	Grain Elevators—Depreciation				
239	Storage Warehouses				
240	Storage Warehouses—Depreciation				
241	Wharves and Docks				
242	Wharves and Docks—Depreciation				
243	Coal and Ore Wharves				
244	Coal and Ore Wharves—Depreciation				
245	Gas Producing Plants				
246	Gas Producing Plants—Depreciation				

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

247	Telegraph and Telephone Lines	2,283.97	5,237.86	228.62	7,750.45
248	Telegraph and Telephone Lines—Depr.				
249	Signals and Interlockers	484.41	11,509.68	2,199.98	14,194.07
250	Signals and Interlockers—Depreciation				
251	Power Plant Dams, Canal, Pipe Lines				
252	Power Plant Dams, Canal, Pipe Lines—Depr.				
253	Power Plant Buildings				
254	Power Plant Buildings—Depreciation				
255	Power Substation Buildings				
256	Power Substation Buildings—Depreciation				
257	Power Transmission System			34.92	34.92
258	Power Transmission System—Depreciation				
259	Power Distribution System	48.20	138.30	29.31	215.81
260	Power Distribution System—Depreciation				
261	Power Line Poles and Fixtures	36.45	102.61	23.23	162.29
262	Power Line Poles and Fixtures—Depr.				
263	Underground Conduits				
264	Underground Conduits—Depreciation				
265	Miscellaneous Structures				
266	Miscellaneous Structures—Depreciation				
267	Paving			3.97	3.97
268	Paving—Depreciation				
269	Roadway Machines	44.82	1,100.81	207.98	1,353.61
270	Roadway Machines—Depreciation				

271	Small Tools and Supplies	1,462.47	3,068.77	371.44	4,902.68
272	Removing Snow, Ice and Sand	299.29	420.28	40 20	759.77
273	Assessments for Public Improvements		4.68		4.68
274	Injuries to Persons	1,022.65	1,170.31	365.84	2,558.80
275	Insurance	107.33	233.64	42.84	383.81
276	Stationery and Printing	46.50	215.61	10.29	272.40
277	Other Expenses	3.80	1.90	.49	6.19
278	M't'g. Jt. Trk., Yds. and Other Fac.—Dr.	113.40	166.65		280.05
279	M't'g. Jt. Trk., Yds. and Other Fac.—Cr.		**11,023.15**	**328.22**	**11,351.37**
280	Equalization—Way and Structures				
	Total	$109,428.62	$182,865.72	$ 20,499.76	$312,794.10

M.E. MAINTENANCE OF EQUIPMENT:	GRAND TOTAL			
	Durham District	Win.-Salem District	Abingdon Branch	Total
301 Superintendence	$ 2,417.03	$ 6,875.36	$ 557.31	$ 9,849.70
302 Shop Machinery	2,731.34	7,659.56	626.81	11,017.71
303 Shop Machinery—Depreciation	1,013.55	2,786.54	227.40	4,027.49
304 Power Plant Machinery	581.33	1,629.08	135.65	2,346.06
305 Power Plant Machinery—Depreciation				
306 Power Substation Apparatus				
307 Power Substation Apparatus—Depreciation				
308 Steam Locomotives—Repairs	40,782.60	166,951.95	13,877.27	221,611.82
309 Steam Locomotives—Depreciation	4,356.13	18,320.97	1,417.45	24,094.55
310 Steam Locomotives—Retirements	687.85	2,461.11	175.75	3,324.71
311 Other Locomotives—Repairs				
312 Other Locomotives—Depreciation				
313 Other Locomotives—Retirements				
314 Freight Train Cars—Repairs	19,426.95	58,321.43	3,374.15	81,122.53
315 Freight Train Cars—Depreciation	8,983.79	26,951.39	1,557.22	37,492.40
316 Freight Train Cars—Retirements	278.52	835.55	48.28	1,162.35

317	Passenger Train Cars—Repairs	5,884.88	12,004.00	2,550.41	20,439.29
318	Passenger Train Cars—Depreciation	1,122.27	2,290.86	478.16	3,891.29
319	Passenger Train Cars—Retirements	.21	.08	.07	.36
320	Motor Equipment of Cars—Repairs				
321	Motor Equipment of Cars—Depreciation				
322	Motor Equipment of Cars—Retirements				
323	Floating Equipment—Repairs				
324	Floating Equipment—Depreciation				
325	Floating Equipment—Retirements				
326	Work Equipment—Repairs	705.03	2,069.67	167.34	2,942.04
327	Work Equipment—Depreciation	375.44	1,032.98	84.51	1,492.93
328	Work Equipment—Retirements	99.72	292.94	24.38	417.04
329	Miscellaneous Equipment—Repairs	37.17	105.03	8.58	150.78
330	Miscellaneous Equipment—Depreciation	17.88	49.26	3.99	71.13
331	Miscellaneous Equipment—Retirements	1.30	3.90	.07	5.27
332	Injuries to Persons	550.34	1,525.47	125.94	2,201.75
333	Insurance	85.52	314.93	26.45	426.90
334	Stationery and Printing	100.51	503.22	45.97	649.70
335	Other Expenses	84.67	237.23	19.70	341.60
336	Maintaining Jt. Equip. at Terminals—Dr.				
337	Maintaining Jt. Equip. at Terminals—Cr.	.49	1.49	.11	2.09
	Total	$ 90,323.54	$313,221.02	$ 25,532.75	$429,077.31

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

TRAFFIC EXPENSES:

351 Superintendence	$ 1,528.19	$ 4,204.09	$ 343.39	$ 6,075.67
352 Outside Agencies	2,681.02	7,379.47	602.35	10,662.84
353 Advertising	217.73	613.70	49.30	880.73
354 Traffic Associations	572.33	596.58	12.70	1,181.61
355 Fast Freight Lines				
356 Industrial and Emigration Bureaus	64.00	176.59	14.55	255.14
357 Insurance				
358 Stationery and Printing	517.74	1,479.78	117.53	2,115.05
359 Other Expenses				
Total	$ 5,581.01	$ 14,450.21	$ 1,139.82	$ 21,171.04

M.E. Maintenance of Equipment:	Apportioned Charges			
	Durham District	Win.-Salem District	Abingdon Branch	Total
301 Superintendence	$ 2,417.03	$ 6,843.44	$ 557.31	$ 9,817.78
302 Shop Machinery	2,731.34	7,659.56	626.81	11,017.71
303 Shop Machinery—Depreciation	1,013.55	2,786.54	227.40	4,027.49
304 Power Plant Machinery	581.33	1,629.08	135.65	2,346.06
305 Power Plant Machinery—Depreciation				
306 Power Substation Apparatus				
307 Power Substation Apparatus—Depreciation				
308 Steam Locomotives—Repairs	40,782.60	166,951.95	13,673.00	221,407.55
309 Steam Locomotives—Depreciation	4,356.13	18,320.97	1,417.45	24,094.55
310 Steam Locomotives—Retirements	687.85	2,461.11	175.75	3,324.71
311 Other Locomotives—Repairs				
312 Other Locomotives—Depreciation				
313 Other Locomotives—Retirements				
314 Freight Train Cars—Repairs	19,426.95	57,537.24	3,351.26	80,315.45
315 Freight Train Cars—Depreciation	8,983.79	26,951.39	1,557.22	37,492.40
316 Freight Train Cars—Retirements	278.52	835.55	48.28	1,162.35
317 Passenger Train Cars—Repairs	5,884.88	12,004.00	2,512.96	20,401.84
318 Passenger Train Cars—Depreciation	1,122.27	2,290.86	478.16	3,891.29
319 Passenger Train Cars—Retirements	.21	.08	.07	.36
320 Motor Equipment of Cars—Repairs				
321 Motor Equipment of Cars—Depreciation				

322	Motor Equipment of Cars—Retirements				
323	Floating Equipment—Repairs				
324	Floating Equipment—Depreciation				
325	Floating Equipment—Retirements				
326	Work Equipment—Repairs	704.81	2,062.52	161.02	2,928.35
327	Work Equipment—Depreciation	375.44	1,032.98	84.51	1,492.93
328	Work Equipment—Retirements	99.72	292.94	24.38	417.04
329	Miscellaneous Equipment—Repairs	37.17	105.03	8.77	150.97
330	Miscellaneous Equipment—Depreciation	17.88	49.26	3.99	71.13
331	Miscellaneous Equipment—Retirements	1.30	3.90	.07	6.27
332	Injuries to Persons	535.52	1,485.32	122.46	2,143.30
333	Insurance	2.21	6.63	.58	9.42
334	Stationery and Printing	28.75	77.25	6.32	112.32
335	Other Expenses	84.67	237.23	19.70	341.60
336	Maintaining Jt. Equip. at Terminals—Dr.				
337	Maintaining Jt. Equip. at Terminals—Cr.				
	Total	$ 90,153.92	$311,624.83	$ 25,193.12	$426,971.87

TRAFFIC EXPENSES:

351 Superintendence	$ 1,528.19	$ 4,204.09	$ 343.39	$ 6,075.67
352 Outside Agencies	2,681.02	7,379.47	602.35	10,662.84
353 Advertising	217.73	613.70	49.30	880.73
354 Traffic Associations	16.05	43.99	3.62	63.66
355 Fast Freight Lines				
356 Industrial and Emigration Bureaus	64.00	176.59	14.55	255.14
357 Insurance				
358 Stationery and Printing	517.74	1,479.78	117.53	2,115.05
359 Other Expenses				
Total	$ 5,024.73	$ 13,897.62	$ 1,130.74	$ 20,053.09

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

M.E. Maintenance of Equipment:	Direct Charges			
	Durham District	Win.-Salem District	Abingdon Branch	Total
301 Superintendence	$	$ 31.92	$	$ 31.92
302 Shop Machinery				
303 Shop Machinery—Depreciation				
304 Power Plant Machinery				
305 Power Plant Machinery—Depreciation				
306 Power Substation Apparatus				
307 Power Substation Apparatus—Depreciation				
308 Steam Locomotives—Repairs			204.27	204.27
309 Steam Locomotives—Depreciation				
310 Steam Locomotives—Retirements				
311 Other Locomotives—Repairs				
312 Other Locomotives—Depreciation				
313 Other Locomotives—Retirements				
314 Freight Train Cars—Repairs		784.19	22.89	807.08
315 Freight Train Cars—Depreciation				
316 Freight Train Cars—Retirements				
317 Passenger Train Cars—Repairs			37.45	37.45
318 Passenger Train Cars—Depreciation				
319 Passenger Train Cars—Retirements				
320 Motor Equipment of Cars—Repairs				
321 Motor Equipment of Cars—Depreciation				

322	Motor Equipment of Cars—Retirements				
323	Floating Equipment—Repairs				
324	Floating Equipment—Depreciation				
325	Floating Equipment—Retirements				
326	Work Equipment—Repairs	.22	7.15	6.32	13.69
327	Work Equipment—Depreciation				
328	Work Equipment—Retirements				
329	Miscellaneous Equipment—Repairs			.19	.19
330	Miscellaneous Equipment—Depreciation				
331	Miscellaneous Equipment—Retirements				
332	Injuries to Persons	14.82	40.15	3.48	58.45
333	Insurance	83.31	308.30	25.87	417.48
334	Stationery and Printing	71.76	425.97	39.65	537.38
335	Other Expenses				
336	Maintaining Jt. Equip. at Terminals—Dr.				
337	Maintaining Jt. Equip. at Terminals—Cr.	.49	1.49	.11	2.09
	Total	$ 169.62	$ 1,596.19	$ 339.63	$ 2,105.44

TRAFFIC EXPENSES:

351 Superintendence	$	$	$	$
352 Outside Agencies				
353 Advertising				
354 Traffic Associations	556.28	552.59	9.08	1,117.95
355 Fast Freight Lines				
356 Industrial and Emigration Bureaus				
357 Insurance				
358 Stationery and Printing				
359 Other Expenses				
Total	$ 556.28	$ 552.59	$ 9.08	$ 1,117.95

C.T.	Transportation—Rail Line:	Grand Total Durham District	Win.-Salem District	Abingdon Branch	Total
371	Superintendence	$ 2,608.92	$ 10,900.68	$ 828.60	$ 14,338.20
372	Dispatching Trains	3,759.62	3,978.64	1,600.12	9,338.38
373	Station Employees	34,596.66	79,976.09	9,630.28	124,203.03
374	Weighing, Inspection, Demurrage Bureaus	882.86	994.81	124.74	2,002.41
375	Coal and Ore Wharves				
376	Station Supplies and Expenses	1,633.00	3,002.86	626.15	5,262.01
377	Yardmasters and Yard Clerks	1,477.61	10,234.96	1,305.32	13,017.89
378	Yard Conductors and Brakemen	2,887.36	17,923.98	1,975.11	22,786.45
379	Yard Switch and Signal Tenders				
380	Yard Enginemen	3,033.62	11,247.60	1,084.05	15,365.27
381	Yard Motormen				
382	Fuel for Yard Locomotives	1,700.93	4,956.35	480.90	7,138.18
383	Yard Switching Power Produced				
384	Yard Switching Power Purchased				
385	Water for Yard Locomotives		336.44	.51	336.95
386	Lubricants for Yard Locomotives	24.20	173.55	7.17	204.92
387	Other Supplies for Yard Locomotives	102.09	172.11	12.22	286.42

388 Enginehouse Expenses—Yard	1,036.62	6,378.39	451.45	7,866.46
389 Yard Supplies and Expenses		2,492.75	42.79	2,535.54
390 Operating Joint Yards and Terminals—Dr.	785.43	3,293.48	4.20	4,083.11
391 Operating Joint Yards and Terminals—Cr.	**30.47**	**31,390.66**	**3,589.30**	**35,010.43**
392 Train Enginemen	32,302.73	73,438.43	7,321.00	113,062.16
393 Train Motormen				
394 Fuel for Train Locomotives	30,151.65	89,364.85	7,412.29	126,928.79
395 Train Power Produced				
396 Train Power Purchased				
397 Water for Train Locomotives	3,619.52	5,278.71	276.78	9,175.01
398 Lubricants for Train Locomotives	741.79	4,400.84	297.61	5,440.24
399 Other Supplies for Train Locomotives	437.11	1,804.50	117.86	2,359.47
400 Enginehouse Expenses—Train	12,243.45	54,974.45	4,759.15	71,977.05
401 Trainmen	26,851.82	60,029.94	6,235.06	93,116.82
402 Train Supplies and Expenses	5,820.64	14,435.69	2,172.16	22,428.49
403 Operating Sleeping Cars				
404 Signal and Interlocker Operation	4,097.80	3,779.04	272.60	8,149.44
405 Crossing Protection	3,946.52	222.84	707.07	4,876.43
406 Drawbridge Operation	**.01**	**.02**	----------	**.03**
407 Telegraph and Telephone Operation	221.82	1,178.03	85.53	1,485.38
408 Operating Floating Equipment				
409 Express Service				
410 Stationery and Printing	1,301.81	3,101.26	345.83	4,748.90
411 Other Expenses	71.42	648.71	64.52	784.65
412 Operating Joint Tracks and Facilities—Dr.				
413 Operating Joint Tracks and Facilities—Cr.	**292.18**	**854.80**	----------	**1,146.98**

414 Insurance	125.50	282.31	31.23	439.04
415 Clearing Wrecks	1,005.01	3,399.58	111.34	4,515.93
416 Damage to Property	156.07	1,168.79	69.73	1,394.59
417 Damage to Live Stock on Right-of-Way	105.45	256.27	46.24	407.96
418 Loss and Damage—Freight	137.24	8,051.00	793.53	8,707.29
419 Loss and Damage—Baggage	1.33	3.85	1.00	6.18
420 Injuries to Persons	2,448.88	7,073.58	1,726.85	11,249.31
Total	$179,719.34	$456,709.88	$ 47,431.69	$683,860.91

TRANSPORTATION—WATER LINE:

431 Operation of Vessels				
432 Operation of Terminals				
433 Incidentals				
Total				

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

C.T.	Transportation—Rail Line:	Apportioned Charges: Durham District	Win.-Salem District	Abingdon Branch	Total
371	Superintendence	$ 471.78	$ 1,300.07	$ 106.02	$ 1,877.87
372	Dispatching Trains				
373	Station Employees	.74	2.21	.19	3.14
374	Weighing, Inspection, Demurrage Bureaus	64.04	176.01	14.35	254.40
375	Coal and Ore Wharves				
376	Station Supplies and Expenses	1.11	3.34	.26	4.71
377	Yardmasters and Yard Clerks	256.79	706.16	57.53	1,020.48
378	Yard Conductors and Brakemen				
379	Yard Switch and Signal Tenders				
380	Yard Enginemen				
381	Yard Motormen				
382	Fuel for Yard Locomotives				
383	Yard Switching Power Produced				
384	Yard Switching Power Purchased				
385	Water for Yard Locomotives				
386	Lubricants for Yard Locomotives				
387	Other Supplies for Yard Locomotives				
388	Enginehouse Expenses—Yard				
389	Yard Supplies and Expenses				
390	Operating Joint Yards and Terminals—Dr.				
391	Operating Joint Yards and Terminals—Cr.				

392	Train Enginemen				
393	Train Motormen				
394	Fuel for Train Locomotives				
395	Train Power Produced				
396	Train Power Purchased				
397	Water for Train Locomotives				
398	Lubricants for Train Locomotives	19.89	59.66	5.17	84.72
399	Other Supplies for Train Locomotives				
400	Enginehouse Expenses—Train	**22.95**	**68.86**	**3.99**	**95.80**
401	Trainmen	587.91	1,622.21	131.77	2,341.89
402	Train Supplies and Expenses	5,619.68	13,991.66	1,719.77	21,331.11
403	Operating Sleeping Cars				
404	Signal and Interlocker Operation				
405	Crossing Protection				
406	Drawbridge Operation				
407	Telegraph and Telephone Operation	11.21	30.66	2.51	44.38
408	Operating Floating Equipment				
409	Express Service				
410	Stationery and Printing	57.10	159.27	12.82	229.19
411	Other Expenses	41.92	112.34	10.76	165.02
412	Operating Joint Tracks and Facilities—Dr.				
413	Operating Joint Tracks and Facilities—Cr.				
414	Insurance	3.59	10.78	.92	15.29
415	Clearing Wrecks				
416	Damage to Property				
417	Damage to Live Stock on Right-of-Way				
418	Loss and Damage—Freight	**134.55**	**372.68**	**29.28**	**536.51**

419 Loss and Damage—Baggage				
420 Injuries to Persons	18.07	40.16	3.46	61.69
Total	$ 6,996.33	$ 17,772.99	$ 2,032.26	$ 26,801.58
TRANSPORTATION—WATER LINE:				
431 Operation of Vessels				
432 Operation of Terminals				
433 Incidentals				
Total				

C.T.	Transportation—Rail Line:	Direct Charges: Durham District	Win.-Salem District	Abingdon Branch	Total
371	Superintendence	$ 2,137.14	$ 9,600.61	$ 722.58	$ 12,460.33
372	Dispatching Trains	3,759.62	3,978.64	1,600.12	9,338.38
373	Station Employees	34,595.92	79,973.88	9,630.09	124,199.89
374	Weighing, Inspection, Demurrage Bureaus	818.82	818.80	110.39	1,748.01
375	Coal and Ore Wharves				
376	Station Supplies and Expenses	1,631.89	2,999.52	625.89	5,257.30
377	Yardmasters and Yard Clerks	1,220.82	9,528.80	1,247.79	11,997.41
378	Yard Conductors and Brakemen	2,887.36	17,923.98	1,975.11	22,786.45
379	Yard Switch and Signal Tenders				
380	Yard Enginemen	3,033.62	11,247.60	1,084.05	15,365.27
381	Yard Motormen				
382	Fuel for Yard Locomotives	1,700.93	4,956.35	480.90	7,138.18
383	Yard Switching Power Produced				
384	Yard Switching Power Purchased				
385	Water for Yard Locomotives		336.44	.51	336.95
386	Lubricants for Yard Locomotives	24.20	173.55	7.17	204.92
387	Other Supplies for Yard Locomotives	102.09	172.11	12.22	286.42
388	Enginehouse Expenses—Yard	1,036.62	6,378.39	451.45	7,866.46
389	Yard Supplies and Expenses		2,492.75	42.79	2,535.54
390	Operating Joint Yards and Terminals—Dr.	785.43	3,293.48	4.20	4,083.11
391	Operating Joint Yards and Terminals—Cr.	30.47	31,390.66	3,589.30	35,010.43

392 Train Enginemen	32,302.73	73,438.43	7,321.00	113,062.16
393 Train Motormen				
394 Fuel for Train Locomotives	30,151.65	89,364.85	7,412.29	126,928.79
395 Train Power Produced				
396 Train Power Purchased				
397 Water for Train Locomotives	3,619.52	5,278.71	276.78	9,175.01
398 Lubricants for Train Locomotives	721.90	4,341.18	292.44	5,355.52
399 Other Supplies for Train Locomotives	437.11	1,804.50	117.86	2,359.47
400 Enginehouse Expenses—Train	12,266.40	55,043.31	4,763.14	72,072.85
401 Trainmen	26,263.91	58,407.73	6,103.29	90,774.93
402 Train Supplies and Expenses	200.96	444.03	452.39	1,097.38
403 Operating Sleeping Cars				
404 Signal and Interlocker Operation	4,097.80	3,779.04	272.60	8,149.44
405 Crossing Protection	3,946.52	222.84	707.07	4,876.43
406 Drawbridge Operation	**.01**	**.02**		**.03**
407 Telegraph and Telephone Operation	210.61	1,147.37	83.02	1,441.00
408 Operating Floating Equipment				
409 Express Service				
410 Stationery and Printing	1,244.71	2,941.99	333.01	4,519.71
411 Other Expenses	29.50	536.37	53.76	619.63
412 Operating Joint Tracks and Facilities—Dr.				
413 Operating Joint Tracks and Facilities—Cr.	**292.18**	**854.80**		**1,146.98**
414 Insurance	121.91	271.53	30.31	423.75
415 Clearing Wrecks	1,005.01	3,399.58	111.34	4,515.93
416 Damage to Property	156.07	1,168.79	69.73	1,394.59
417 Damage to Live Stock on Right-of-Way	105.45	256.27	46.24	407.96

418 Loss and Damage—Freight	2.69	8,423.68	822.81	9,243.80
419 Loss and Damage—Baggage	1.33	3.85	1.00	6.18
420 Injuries to Persons	2,430.81	7,033.42	1,723.39	11,187.62
Total	$172,723.01	$438,936.89	$ 45,399.43	$657,059.33

TRANSPORTATION—WATER LINE:

431 Operation of Vessels				
432 Operation of Terminals				
433 Incidentals				
Total				

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

	Grand Total			
M.O. Miscellaneous Operations:	Durham District	Win.-Salem District	Abingdon Branch	Total
441 Dining and Buffet Service	$ .22	$ 57.21	$ 816.80	$ 874.23
442 Hotels and Restaurants				
443 Grain Elevators				
444 Stockyards	1.92	21.13	9.31	32.36
445 Producing Power Sold	53.16	150.50	12.38	216.04
446 Other Miscellaneous Operations			.09	.09
Total	$ 55.30	$ 228.84	$ 838.58	$ 1,122.72
G.E. General:				
451 Salaries and Expenses of General Officers	$ 947.49	$ 2,602.09	$ 212.22	$ 3,761.80
452 Salaries, Expenses of Clerks & Attendants	3,679.12	10,162.16	846.50	14,687.78
453 General Office Supplies and Expenses	265.14	718.58	59.15	1,042.87
454 Law Expenses	1,101.47	4,378.37	597.19	6,077.03
455 Insurance	8.48	15.29	2.35	26.12

456 Relief Department Expenses	535.62	1,508.72	127.43	2,171.77
457 Pensions	1,374.17	3,778.84	308.80	5,461.81
458 Stationery and Printing	237.16	651.88	53.60	942.64
459 Valuation Expenses	1,106.99	3,045.23	251.67	4,403.89
460 Other Expenses	628.34	1,407.54	148.20	2,184.08
461 General Joint Facilities—Dr.	68.79	187.00		255.79
462 General Joint Facilities—Cr.				
Total	$ 9,935.81	$ 28,425.12	$ 2,602.41	$ 40,963.34
Transportation for Investment—Cr.	$ 1,248.49	$ 978.97	$ 523.61	$ 2,751.07

GENERAL SUMMARY:

Maintenance of Way and Structures	$109,621.08	$183,387.16	$ 20,542.72	$313,550.96
Maintenance of Equipment	90,323.54	313,221.02	25,532.75	429,077.31
Traffic	5,581.01	14,450.21	1,139.82	21,171.04
Transportation—Rail Line	179,719.34	456,709.88	47,431.69	683,860.91
Transportation—Water Line				
Miscellaneous Operations	55.30	228.84	838.58	1,122.72
General	9,935.81	28,425.12	2,602.41	40,963.34
Transportation for Investment—Cr.	1,248.49	978.97	523.61	2,751.07
Grand Total	$393,987.59	$995,443.26	$ 97,564.36	$1,486,995.21

M.O. Miscellaneous Operations:	Apportioned Charges: Durham District	Win.-Salem District	Abingdon Branch	Total
441 Dining and Buffet Service				
442 Hotels and Restaurants				
443 Grain Elevators				
444 Stockyards				
445 Producing Power Sold				
446 Other Miscellaneous Operations				
Total				
G.E. General:				
451 Salaries and Expenses of General Officers	$ 947.49	$ 2,602.09	$ 212.09	$ 3,761.67
452 Salaries, Expenses of Clerks & Attendants	3,559.41	9,790.51	798.01	14,147.93
453 General Office Supplies and Expenses	265.01	718.45	59.14	1,042.60
454 Law Expenses	264.64	757.39	63.29	1,085.32
455 Insurance	**10.16**	**20.26**	**2.65**	**33.07**
456 Relief Department Expenses	500.06	1,374.18	111.70	1,985.94
457 Pensions	1,374.17	3,778.84	308.80	5,461.81
458 Stationery and Printing	237.16	651.88	53.60	942.64
459 Valuation Expenses	1,106.99	3,045.23	251.67	4,403.89

460 Other Expenses	422.31	1,174.37	91.56	1,688.24
461 General Joint Facilities—Dr.				
462 General Joint Facilities—Cr.				
Total	$ 8,667.08	$ 23,872.68	$ 1,947.21	$ 34,486.97
Transportation for Investment—Cr.				

GENERAL SUMMARY:

Maintenance of Way and Structures	$ 192.46	$ 521.44	$ 42.96	$ 756.86
Maintenance of Equipment	90,153.92	311,624.83	25,193.12	426,971.87
Traffic	5,024.73	13,897.62	1,130.74	20,053.09
Transportation—Rail Line	6,996.33	17,772.99	2,032.26	26,801.58
Transportation—Water Line				
Miscellaneous Operations				
General	8,667.08	23,872.68	1,947.21	34,486.97
Transportation for Investment—Cr.				
Grand Total	$111,034.52	$367,689.56	$ 30,346.29	$509,070.37

	Direct Charges			
M.O. Miscellaneous Operations:	Durham District	Win.-Salem District	Abingdon Branch	Total
441 Dining and Buffet Service	$ .22	$ 57.21	$ 816.80	$ 874.23
442 Hotels and Restaurants				
443 Grain Elevators				
444 Stockyards	1.92	21.13	9.31	32.36
445 Producing Power Sold	53.16	150.50	12.38	216.04
446 Other Miscellaneous Operations			.09	.09
Total	$ 55.30	$ 228.84	$ 838.58	$ 1,122.72
G.E. General:				
451 Salaries and Expenses of General Officers	$	$	$ .13	$ .13
452 Salaries, Expenses of Clerks & Attendants	119.71	371.65	48.49	539.85
453 General Office Supplies and Expenses	.13	.13	.01	.27
454 Law Expenses	836.83	3,620.98	533.90	4,991.71
455 Insurance	1.68	4.97	.30	6.95
456 Relief Department Expenses	35.56	134.54	15.73	185.83
457 Pensions				
458 Stationery and Printing				
459 Valuation Expenses				
460 Other Expenses	206.03	233.17	56.64	495.84

461 General Joint Facilities—Dr.	68.79	187.00	----------	255.79
462 General Joint Facilities—Cr.				
Total	$ 1,268.73	$ 4,552.44	$ 655.20	$ 6,476.37
Transportation for Investment—Cr.	**$ 1,248.49**	**$ 978.97**	**$ 523.61**	**$ 2,751.07**

GENERAL SUMMARY:

Maintenance of Way and Structures	$109,428.62	$182,865.72	$ 20,499.76	$312,794.10
Maintenance of Equipment	169.62	1,596.19	339.63	2,105.44
Traffic	556.28	552.59	9.08	1,117.95
Transportation—Rail Line	172,723.01	438,936.89	45,399.43	657,059.33
Transportation—Water Line				
Miscellaneous Operations	55.30	228.84	838.58	1,122.72
General	1,268.73	4,552.44	655.20	6,476.37
Transportation for Investment—Cr.	**1,248.49**	**978.97**	**523.61**	**2,751.07**
Grand Total	$282,953.07	$627,753.70	$ 67,218.07	$977,924.84

NOTE: The expenditures which have been apportioned to the operating districts on basis of wheelage; (i.e., car-mileage or locomotive-ton-miles), have been recorded hereon under the general heading "Apportioned Charges," whilst the expenditures that are actually assigned to operating districts have been recorded under the general heading "Direct Charges."

The expenditures shown in columns headed "Durham District" and Winston-Salem District" have been assigned to "North Carolina" on an operated mileage prorate of the recorded charges for those districts, whilst the expenditures shown in column headed "Abingdon Branch" cover wheelage (car mileage) prorate of the Pulaski District, (the Abingdon Branch being an integral part of that District), and then assigned to "North Carolina" on operated mileage basis.

Office of Comptroller,
Roanoke, Virginia,
January 23, 1931.
GV/A—15

NORFOLK AND WESTERN RAILWAY COMPANY

Statement Showing Direct and Apportioned Charges for the Durham and Winston-Salem Districts and Abingdon Branch Applicable to North Carolina, Together with Ratio of Each to Total Operating Expenses—Year 1927.

	Durham	Ratio	Winston-Salem	Ratio
Direct Charges				
Maintenance of Way and Structures	$ 109,428.62	99.82	$ 182,865.72	99.71
Maintenance of Equipment	169.62	.19	1,596.19	.51
Traffic	556.28	9.97	552.59	3.82
Transportation Rail Line	172,723.01	96.11	438,936.89	96.11
Miscellaneous Operations	55.30	100.00	228.84	100.00
General	1,268.73	12.77	4,552.44	16.02
Transportation for Investment—Cr.	**1,248.49**	**100.00**	**978.97**	**100.00**
Total	$ 282,953.07	71.82	$ 627,753.70	63.06
Apportioned Charges				
Maintenance of Way and Structures	$ 192.46	.18	$ 521.44	.29
Maintenance of Equipment	90,153.92	99.81	311,624.83	99.49
Traffic	5,024.73	90.03	13,897.62	96.18
Transportation Rail Line	6,996.33	3.89	17,772.99	3.89

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

Miscellaneous Operations				
General	8,667.08	87.23	23,872.68	83.98
Transportation for Investment—Cr.				
Total	$ 111,034.52	28.18	$ 367,689.56	36.94
	GRAND TOTAL			
Maintenance of Way and Structures	$ 109,621.08	100.00	$ 183,387.16	100.00
Maintenance of Equipment	90,323.54	100.00	313,221.02	100.00
Traffic	5,581.01	100.00	14,450.21	100.00
Transportation Rail Line	179,719.34	100.00	456,709.88	100.00
Miscellaneous Operations	55.30	100.00	228.84	100.00
General	9,935.81	100.00	28,425.12	100.00
Transportation for Investment—Cr.	1,248.49	100.00	978.97	100.00
Total as Shown on Exhibit "J" Sheet 4	$ 393,987.59	100.00	$ 995,443.26	100.00
Actual Expense on Abingdon Branch as Shown on Exhibit "C" prepared by Supt.				
Amount Shown above based on "Wheelage"				
Add Difference to Equal Actual Figures				
	$ 393,987.59		$ 995,443.26	
Total as Shown on Exhibit "B"				

	Direct Charges			
	Abingdon Branch	Ratio	Total N. C. Expense	Ratio
Maintenance of Way and Structures	$ 20,499.76	99.79	$ 312,794.10	99.75
Maintenance of Equipment	339.63	1.33	2,105.44	.49
Traffic	9.08	.80	1,117.95	5.28
Transportation Rail Line	45,399.43	95.72	657,059.33	96.08
Miscellaneous Operations	838.58	100.00	1,122.72	100.00
General	655.20	25.18	6,476.37	15.81
Transportation for Investment—Cr.	523.61	100.00	2,751.07	100.00
Total	$ 67,218.07	68.89	$ 977,924.84	65.77

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

	APPORTIONED CHARGES			
Maintenance of Way and Structures	$ 42.96	.21	$ 756.86	.25
Maintenance of Equipment	25,193.12	98.67	426,971.87	99.51
Traffic	1,130.74	99.20	20,053.09	94.72
Transportation Rail Line	2,032.26	4.28	26,801.58	3.92
Miscellaneous Operations				
General	1,947.21	74.82	34,486.97	84.19
Transportation for Investment—Cr.				
Total	$ 30,346.29	31.11	$ 509,070.37	34.23
	GRAND TOTAL			
Maintenance of Way and Structures	$ 20,542.72	100.00	$ 313,550.96	100.00
Maintenance of Equipment	25,532.75	100.00	429,077.31	100.00
Traffic	1,139.82	100.00	21,171.04	100.00
Transportation Rail Line	47,431.69	100.00	683,860.91	100.00
Miscellaneous Operations	838.58	100.00	1,122.72	100.00
General	2,602.41	100.00	40,963.34	100.00
Transportation for Investment—Cr.	**523.61**	**100.00**	**2,751.07**	**100.00**
Total as Shown on Exhibit "J" Sheet 4	$ 97,564.36	100.00	$1,486,995.21	100.00

Actual Expense on Abingdon Branch as Shown on Exhibit "C" prepared by Supt.	$ 131,504.47	
Amount Shown above based on "Wheelage"	97,564.36	
Add Difference to Equal Actual Figures	$ 33,940.11	$ 33,940.11
	$ 131,504.47	
Total as Shown on Exhibit "B"		$1,520,935.32

Office of Comptroller,
Roanoke, Virginia,
August 8, 1931—rep/rf.

Vaughan Exhibit "K"

NORFOLK AND WESTERN RAILWAY COMPANY

Statement of Actual Operating Expenses of Abingdon Branch (as compiled by Superintendent, Radford Division), showing assignment to North Carolina as "Actual Expenses incurred in North Carolina," on a "Road-Mileage prorate" or on a "Train-Mileage prorate," and comparison with "Assignment to North Carolina on a 'Road-Mileage prorate' of all expenses for the Abingdon Branch," for the years 1927, 1928 and 1929.

	Train Mileage on Abingdon Branch (Compiled by Superintendent Car Service—Actual Figures)		
	Year 1927	Year 1928	Year 1929
PASSENGER TRAINS:			
Virginia	25,666	25,748	25,666
North Carolina	13,146	13,188	13,146
MIXED TRAINS:			
Virginia	None	None	None
North Carolina	11,894	11,932	11,894
FREIGHT TRAINS:			
Virginia	22,958	23,768	22,800
North Carolina	13,469	13,236	13,146

Totals:			
Virginia	48,624 — 55.80%	49,516 — 56.35%	48,466 — 55.93%
North Carolina	38,509 — 44.20%	38,356 — 43.65%	38,186 — 44.07%
Grand Total	87,133	87,872	86,652

Road Mileage percentages for Abingdon Branch, for years 1927, 1928 and 1929.

Owned mileage	77.06	
Leased mileage	1.74	
Total	78.80	
Virginia mileage	38.19 —	48.46%
North Carolina mileage	40.61 —	51.54%
Total	78.80	100.00%

Vaughan Exhibit "K"

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*.

	Primary Accounts	Year 1927 Total for Abingdon Branch	North Carolina proportion
ON ROAD MILEAGE PRORATE:			
Maintenance of way and structures	All	$ 99,192.70	
Superintendence	CT-371	3,563.65	
Dispatching trains	CT-372	3,078.90	
Damage to livestock on Railway	CT-417	27.03	
		$105,862.28 x 51.54%	— $ 54,561.42
ON TRAIN MILEAGE PRORATE:			
Train enginemen	CT-392	$ 53,245.88	
Trainmen	CT-401		
Fuel for train locomotives	CT-394	39,776.45	
Water for train locomotives	CT-397	3.90	
Other supplies for train locomotives	CT-399	90.00	
Enginehouse expenses	CT-400	836.93	
Clearing wrecks	CT-415	260.13	
Locomotive repairs	ME-308	28,447.44	
		$122,660.73 x 44.20%	— $ 54,216.04

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ACTUAL EXPENDITURES:		
Station employees	CT-373	11,409.48
Wages of work-trains		3,422.76
Total operating expenses for North Carolina on above basis		$123,609.70
Total operating expenses for North Carolina using a "Road-mileage" prorate		131,504.47
Resulting in a decrease in amount of operating expenses assigned to North Carolina portion of the Abingdon Branch, of		$ 7,894.77

YEAR 1928

	Primary Accounts	Total for Abingdon Branch	North Carolina Proportion
ON ROAD MILEAGE PRORATE:			
Maintenance of way and structures	All	$ 85,299.07	
Superintendence	CT-371	3,180.83	
Dispatching trains	CT-372	3,399.36	
Damage to livestock on Railway	CT-417	35.50	
		$ 91,914.76 x 51.54%	— $ 47,372.87

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

	Primary Accounts	Year 1928 Total for Abingdon Branch	North Carolina proportion
ON TRAIN MILEAGE PRORATE:			
Train enginemen	CT-392	$ 53,891.49	
Trainmen	CT-401		
Fuel for train locomotives	CT-394	37,181.42	
Water for train locomotives	CT-397	----------	
Other supplies for train locomotives	CT-399	----------	
Enginehouse expenses	CT-400	829.83	
Clearing wrecks	CT-415	499.02	
Locomotive repairs	ME-308	24,063.42	
		$116,465.18 x 43.65%	— $ 50,837.05
ACTUAL EXPENDITURES:			
Station employees	CT-373		11,060.52
Wages of work-trains			666.98
			$109,937.42

Total operating expenses for North Carolina on above basis				
Total operating expenses for North Carolina using a "Road-mileage" prorate				118,339.60
Resulting in a decrease in amount of operating expenses assigned to North Carolina portion of the Abingdon Branch, of				$ 8,402.18
ON ROAD MILEAGE PRORATE:				
Maintenance of way and structures	All	$130,942.65		
Superintendence	CT-371	3,343.41		
Dispatching trains	CT-372	3,134.91		
Damage to livestock on Railway	CT-417	22.53		
		$137,443.50	x 51.54% —	$ 70,838.38
ON TRAIN MILEAGE PRORATE:				
Train enginemen	CT-392	$ 40,368.18		
Trainmen	CT-401			
Fuel for train locomotives	CT-394	29,079.57		
Water for train locomotives	CT-397	----------		
Other supplies for train locomotives	CT-399	----------		
Enginehouse expenses	CT-400	719.20		
Clearing wrecks	CT-415	65.54		
Locomotive repairs	ME-308	23,279.94		
		$ 93,512.43	x 44.07% —	$ 41,210.93

Vaughan Exhibit "K"

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

		Year 1929	
	Primary Accounts	Total for Abingdon Branch	North Carolina proportion
ACTUAL EXPENDITURES:			
Station employees	CT-373		12,008.64
Wages of work-trains			1,980.71
Total operating expenses for North Carolina on above basis			$126,038.66
Total operating expenses for North Carolina using a "Road-mileage" prorate			131,393.02
Resulting in a decrease in amount of operating expenses assigned to North Carolina portion of the Abingdon Branch, of			$ 5,354.36

Office of Comptroller,
Roanoke, Virginia,
September 22, 1931.
v/a—(15)

CROSS-EXAMINATION, by Assistant Attorney General Siler.

Q. At the bottom of Sheet 2, Mr. Vaughan, of your revised answer to question 3a, which was directed to a criticism of the statutory formula's use of the system operating ratio you say, "Now, we know definitely and exactly what we spent for train fuel and wages on the branches and districts entering North Carolina * * *" I would like to ask you if you have any qualifications which you wish to make of that very emphatic statement?

A. No, sir.

Q. The cost of locomotive fuel used on the Winston-Salem and Durham branches is not produced on those districts, is it?

A. What do you mean, "not produced?"

Q. Do you secure the coal on these districts, or do they come from beyond?

A. They come from beyond.

That fuel has to be hauled from mines located elsewhere on the Railway. I have not included in my figures representing the cost of locomotive fuel used on these branches the cost of transportation from the mines to the nearest termini of the branches. Delivering the fuel to the point of use is an essential element in the cost of it. It is part of the expense, but the cost of transportation is not included in the amount charged to the fuel account for the fuel used.

Q. Then assuming the correctness of your statement that you "know definitely and exactly" the cost of the fuel used on these branches, but have omitted one element of the cost from your figures, please tell us what it cost to deliver this fuel to the respective branches for the years 1927, 1928 and 1929, and where such amounts lodge in your accounts as they are portrayed in your exhibits?

Objection by the Railroad Company (Mr. Cox stated that no part of that cost has been charged to North Carolina operation).

A. In the operation of a railroad, no charges are set up covering the transportation of materials over its own lines, and no expense of that character is included in the data embraced in my exhibit.

And that, of course, refers to operations of the State as well as outside North Carolina.

Q. Kindly refer to your Exhibit L, which is a reconciliation of operating expenses in North Carolina for the year 1927, as shown on Conrad Exhibit No. 7 and your Revised Exhibit B and Exhibit J. Why do you call the discrepancy of $33,940.11 there dealt with an "apparent difference"—because it is conspicuous and readily discernible, or because it is a difference which appears to exist but does not actually exist?

A. Will you turn to Sheet 5 of Vaughan Exhibit J in the column headed "Abingdon Branch," and in the column headed "North Carolina Expense," at the bottom of the sheet, opposite the words "Add difference to Equal Actual Expense," the amount $33,940.11. We felt that that explanation was not as clear as it ought to be, just stated, "Add difference to Equal Actual Expense," so we prepared Exhibit L, showing the reconciliation on the second exhibit; also to indicate clearly that we had not included in the Abingdon Branch expenses incident to the operation of dining cars and other items which were not applicable to the Abingdon Branch. It was just a case of clarification of the two exhibits.

Q. What kind of work was going on on the Abingdon Branch in 1927, or what kind of company traffic originated on that branch in that year, which occasions the credit of $2,751.07 for Transportation for Investment, which is shown on line 2 in the last column but one on your Exhibit L?

A. I cannot recall what work was going on at that time. My records at Roanoke would indicate it. I know how this figure was gotten at.

Q. Is it a prorate of General Account VIII—Transportation for Investment—Credit for the system, and if so, what basis was used for the prorate?

A. I am not positive, but my recollection is it was a mileage prorate for the Pulaski District. At any rate, it is giving North Carolina credit there and nothing is charged against them.

Q. How were the Traffic Expenses of $20,031.22 shown on Conrad Exhibit 7, and of $21,171.04 shown on your Exhibit J arrived at for this branch?

A. That was a mileage prorate out of the Pulaski District of traffic expense.

Q. Well, considering the traffic moving over this territory do you not suspect that this charge is pretty steep?

A. Well, if that $20,000 was all for the Abingdon Branch it would be, but it covered the Durham District and the Winston-Salem District. If you will refer to the Grand Total on Vaughan Exhibit, sheet 5, you will notice that the Traffic Expense for Durham was $5,581.01; for Winston-Salem $14,450.21; Abingdon Branch $1,139.82, making a total expense of $21,171.04 in North Carolina Traffic Expense, and then we reduced that by $1,139.82.

Q. What sort of "Miscellaneous Operations" were conducted on this Abingdon Branch in 1927 that occasioned the charge of $1,122.72 as shown on your Exhibit J, which are figures shown or furnished by Superintendent Smith, as I understand it, which he changed from $284.14 as you found them for Mr. Conrad's Exhibit 7?

A. We reduced the "Miscellaneous Operations" for in the first statement we put in the dining cars which should not have gone in.

In the original statement there on my Exhibit J we had assigned to the Abingdon Branch the proportion of the operation of dining cars in the "Miscellaneous Operations," and we realized those expenses were not incident to the operation of the Abingdon Branch and in the preparation of our subsequent figures we eliminated it from the Abingdon Branch. Our records indicate the actual expenditures on operating the dining cars. For instance, the expense of handling them is segregated to the line between Roanoke and Bristol, a portion are assignable to the Radford District and a part to the Pulaski District on the basis of the mileage operated by these cars between terminals, which actual proportion of the original Exhibit were assigned a portion of the Pulaski District to the State of North Carolina on account of the Abingdon Branch, which have been eliminated, which have been eliminated by the final assigning, as shown by the Reconciliation on Exhibit L.

Q. So it doesn't show actual but only proportional part of it?

A. Originally, but they have now been cut out of the North Carolina figures.

Q. Now about the prorate system, the Pulaski District is part of the prorate system as part of the entire line?

A. It doesn't enter into it.

Q. In what way would we arrive at that figure?

A. All expense is assignable to that District.

Q. How about the General Expenses charge of $40,963.34 furnished on Exhibit L as compared with the $38,360.93 for the same item which you furnished Mr. Conrad? Is that the amount of such expenses actually incurred on the Abingdon Branch in 1927, or is it a prorate of a system total?

A. That amount is not the expense on the Abingdon Branch. The Heading on Conrad's Exhibit 7 reads "Expenses in North Carolina using System Operating Ratio."

The amount arrived at for the North Carolina operation for the Durham and Winston-Salem Districts was the apportionment on the mileage basis of the expenses assigned to those two Districts. The mileage prorate being made for that portion assignable to North Carolina for those two Districts. The Railway purports to keep its accounts and statistics in accordance with the requirements of the rules and regulations of the Interstate Commerce Commission. The I. C. C. rules and regulations relate to the accounts and statistics of the Railway as a whole. The rules and regulations of the I. C. C. do not contain any provisions, or provide any basis, for the separation of railway operating revenues and expenses as between the several states in which a railway may operate, or as between the several districts into which a carrier may sub-divide its property for accounting purposes. When I refer to the fact that the Railway is subdivided into districts for the purpose of "operating and accounting," it is to be understood that for each such district a complete set of accounts is kept, comprehending all expenses and revenues. You understand correctly that the figures contained in my several Exhibits were compiled under my personal supervision and direction and that I am able to vouch for their substantial correctness. In my answer to Question No. 1, I qualify myself by saying that I am assistant to the Comptroller of the Railway and have held that position for 20 years. It is correctly understood therefrom that I possess a working knowledge of railway accounts and statistics, and that I appear here as an expert in accounting and statistical matters.

I have a personal acquaintance with one W. H. Wilson, who was employed by the Norfolk & Western Railway during the years 1927, 1928 and 1929. The official position Mr. Wilson held with the railway during those years was Comptroller. When during the years I served in the capacity of assistant to the Comptroller, as testified in my answer No. 1, this same W. H. Wilson was my superior officer and the man to whom I was an assistant.

Your understanding is correct that the figures shown in my several exhibits were compiled either by myself or under my personal direction and supervision and that I am familiar with the manner of their preparation and in a position to vouch for their substantial correctness. On my revised Exhibit No. A, I show total railway operating expenses assignable to the State of North Carolina as $1,520,935.32 for the year 1927; $1,455,623.74 for the year 1928, and $1,444,704.56 for the year 1929. That is correct.

Q. I am now handing you a paper bound volume with request that you kindly describe and identify it?

A. Annual Report of the Norfolk & Western Railway Company to the Corporation Commission of the State of North Carolina for the year ended December 31, 1927.

I will turn to the page of that report which is numbered in the upper right-hand corner as 911, examine the contents thereof, and tell whether in my opinion this is the original copy of the report prepared and submitted by my company to the North Carolina Corporation Commission for the year 1927. It is the original copy of said report.

Q. Will you kindly refer to the page of this report numbered 707 and to line numbered 247 on that page and read the amount of operating expenses there reported

as having been incurred within the State of North Carolina during the year 1927 and describe the column in which you find the amount?

A. $1,804,168.99, page 707, column B at line 247, Grand Total Railway Expenses.

Q. Will you now kindly refer again to page numbered 911 of this document and read into the record the printed and written matter appearing at the top of that page preceding the following sub-heading which reads "Supplemental Oath?"

A. All right. (Mr. Vaughan read the following into the record): "State of Virginia, City of Roanoke. W. H. Wilson makes oath and says that he is Comptroller of Norfolk & Western Railway; that it is his duty to have supervision Over the Books of Accounts of the respondent and to control the manner in which such books are kept; that he knows that such books have, during the period covered by the foregoing report, been kept in good faith in accordance with the accounting and other orders of the Interstate Commerce Commission, effective during the said period; that he has carefully examined the said report and to the best of his knowledge and belief the entries contained in the said report have, so far as they relate to matters of account, been accurately taken from the said books of account and are in exact accordance therewith; that he believes all other statements of fact contained in the said report are true, and that the said report is a correct and complete statement of the business and affairs of the above-named respondent during the period of time from and including January 1, 1927, to and including December 31, 1927.

"(Signed) W. H. Wilson."

"Subscribed to and sworn before me a Notary Public, City above named, this 30th day of April, 1928. My commission expires January 8, 1929.

"(Signed) W. A. Carpenter."

Witness identifies Annual Report of the Norfolk & Western Railway Company to the Corporation Commission for the year 1928.

Q. Will you please examine page 913 of this volume and say if the inscriptions thereon indicate to you that this is the original copy of the Railway Company's report to the North Carolina Corporation Commission for the year 1928?

A. It does.

Q. Will you now kindly refer to page 707 in this 1928 report and read into this record the amount there reported as the total operating expenses incurred by the Railway Company in the State of North Carolina during the year 1928 and describe the line, number and column in which that amount appears?

A. On page 706, in column B, under the head "Amount of Operating Expenses for the Year," on line 247, the amount reads $1,773,023.11. May I state that the oath in this connection seems to be in proper shape as to the names.

Witness identifies Annual Operating Report of the Norfolk & Western Railway to the Corporation Commission of North Carolina, for the year ending December 31, 1929.

Q. Kindly turn to page 915 and say whether the inscription there appearing enables you to identify this report as the original copy of the report made by your railway to the Corporation Commission of the State of North Carolina for the year 1929?

A. It does.

Q. Kindly turn to page 707 of this volume and read into the record the amount there reported as the grand total of railway operating expenses incurred within the State of North Carolina during the year 1929, and state the column and line reference from which that amount is taken?

A. On page 706 appears a column head reading "Account of Operating Expenses for Year." On page 707, line 247 reads "Grand Total Railway Operating Expenses," and the amount in that column is $1,703,805.97. The names in the oath on page 915 appear properly.

Q. Now, if our calculation is correct, the amount which you have used in your Exhibit B as total railway operating expenses incurred within the State of North Carolina during the year 1927 is $283,233.67 less than the amount reported by your superior officer under oath in your Company's annual report to the Corporation Commission of this State, for the year 1928 the amount which you use in your Exhibits as operating expenses assignable to North Carolina is $317,399.37 less than the amount contained in annual report covered by the oath of your superior officer, and for the year 1929 the amount which you use in Exhibit A as operating expenses assignable to the State of North Carolina is $259,101.41 less than the operating expenses chargeable to the State as reported by your immediate superior under oath in the Railway's annual report to the Corporation Commission for that year. Will you please confirm the amount of these differences, or state wherein they are in error?

A. The figures read into the record are correct, there being a difference between the grand total of operating expenses of North Carolina as expressed in the operating reports to the Corporation Commission and embraced in our exhibits.

Q. Please confirm and state whether they are in error?

A. The figures in our Exhibits have been rechecked and made more nearly the actual figures whether for apportionment or direct assignment. While figures in operating reports for North Carolina is an apportionment on direct mileage, the Pulaski District expenses included the Miscellaneous Expenses, such as dining cars, etc., and which have been eliminated in our Exhibits.

Witness identifies reports to the State of North Carolina, State Department of Revenue, Public Service Corporation Income Tax Returns for the years ending December 31, 1927, 1928 and 1929.

The operating expense as shown by these reports for the year ending December 31, 1927, is $1,804,168.99; for the year ending December 31, 1928, $1,773,023.11; for the year ending December 31, 1929, $1,703,805.97. Those figures do not agree with the total operating expenses assignable to the State for the same years as shown on our Exhibit B. I will turn to that page in this original report of my Company for the year 1927 to the North Carolina Corporation Commission which shows the railway operating revenues as earned within the State of North Carolina, and read the total amount of revenue so reported, and also the typed note at the bottom of the page showing the manner in which such amount was arrived at. Page 700, schedule 701, Railway Operating Revenue earned within the State, the total shown on line 44, is $1,384,005.08. I will read the note typed at the bottom of the page showing the manner in which such amount was arrived at. The note appearing at the bottom of page 700, in response to the question on line 50, "This Company computed revenue on the following basis, entire amount of intrastate traffic is assigned to each state in which the traffic is made."

Q. Now, Mr. Vaughan, the amount that you now offer is based on your last calculations and is $1,579,850.54, or $195,848.46 more, is it not?

A. That is the correct revenue for 1927.

Q. Now if we combine the $195,845.46 increase in gross revenue, and the $283,233.67 decrease in operating expenses to which you have previously testified, we have an increase of $479,079.13 in the net earnings reported under oath in the 1927 annual report of your company and the amounts contained in your Exhibits, do we not?

A. I assume that data is correct. I have not made the calculation.

Here is the 1928 report of the Railway Company to the Corporation Commission which I have previously identified as the original. I will read the amount of gross revenues therein reported as having been earned within the State of North Carolina in the year 1928: $1,305,-683.08, page 700, schedule 701, Railway Operating Revenue earned within the State, line 44.

Now for the year 1928, the gross revenue assigned to North Carolina on the basis of my present Exhibits is $1,437,861.41, or $132,178.33 more, approximately.

If to this $132,178.33 of additional revenue we add the reduction of $317,399.37 in railway operating expenses as shown on your present exhibits, as compared with the annual report, we have an increase of $499,-577.70 in the North Carolina earnings for 1928, approximately. I have not checked the figures.

Here is the 1929 report of the Railway to the North Carolina Corporation Commission, which I have heretofore identified and which was also submitted under oath, and I will turn to the proper page and read the amount of railway operating revenues shown to have been earned in North Carolina during 1929. Page 700, schedule 701, Railway Operating Revenues, line 44, total, $1,300,-

495.16. For 1929, the gross revenues assigned to North Carolina in my Exhibits filed in this case, as revised, is $1,410,818.36, or $110,323.20 more, approximately. I have not checked the figures. I we add to this $110,323.20 of increased gross revenues the $259,101.41 decrease in North Carolina operating expenses which my Exhibits show as compared with the annual report, we have a total increase in North Carolina net earnings of $369,424.61, approximately. I have not checked the figures. The foot-notes are the same in 1928 and 1929 that I read in 1927—they are identical. The Corporation Commission of this State has never prescribed a method or basis for our use in apportioning operating expenses to the State for the purpose of our annual report to that body, leaving the matter to our discretion. I have with me some of the working papers on which I have prepared my revised assignment of freight revenue to the State of North Carolina for the years 1927, 1928 and 1929, which I now say is on an equal mileage prorate, consistent with the statutory requirements. I have a paper furnished me by our statistician's office giving the corrected figures, showing the actual mileage prorate of interstate revenues through the State of North Carolina, and that was the basis of the corrections in my supplemental revised exhibits.

RE-DIRECT EXAMINATION of Mr. Vaughan, by Mr. Rivinus:

Q. Will the witness please explain the difference between the total North Carolina operating expenses shown in his exhibits in this case, and the total North Carolina operating expenses shown in the annual reports to the North Carolina Corporation Commission?

A. The occasion for the greater amounts of operating expenses being included in the annual reports to the Cor-

poration Commission of North Carolina, which are in excess of the operating expenses shown in the various Exhibits verified by me in this case is due to the fact that in the reports to the Commission in apportioning the operating expenses to the State of North Carolina, we took the total operating expenses of the Pulaski District and assigned to the State of North Carolina, on account of the operation of the Abingdon Branch, situated in North Carolina, an actual mileage prorate. In the total of the operating expenses of the Pulaski District, there had been included, before making those assigned expenses, expenses which were in no way incident to the operation of the Abingdon Branch. For this cause, we eliminated from the total operating expenses of the Pulaski Division, such expenses as were not incident to the Abingdon Branch before making the prorate to North Carolina on account of that branch, and further, we procured the actual operating expenses of the Abingdon Branch and used it.

Q. Does the handling of the figures applicable to the North Carolina operation of the Abingdon Branch, which you have explained, account for the entire difference, which counsel for the State have specified?

A. The Pulaski District did not account for all of it. I cannot, off-hand, cite the other differences, but there were differences which reduced the expenses on this District, where we attempted to get an approximate figure instead of actual figures, and what we did was in favor of the State.

I account for the difference in gross railway operating revenues attributed to North Carolina operation, between what is reported in my annual reports to the Corporation Commission of the State and what I am reporting in my exhibits as follows: The original figures embraced

in the Income Tax Returns to the State of North Carolina were based on the dollar mileage prorate.

Q. But how about the report to the Corporation Commission?

A. That is the same as the Income Tax, the gross revenues and the Income Tax Return, the gross operating revenues shown in the annual reports to the Corporation Commission and the Income Tax for 1927 were the same. That is true as to 1928 and 1929.

Q. What caused the difference between your figures made to the State in your annual reports and the figures employed in your exhibits?

A. I have explained it yesterday. One was a dollar mile and the other an actual mileage prorate.

I have already explained that the difference between my reports of North Carolina Operating Expense to the Corporation Commission are the same as my original reports for income tax purposes. The difference between those expense figures and the figures I am testifying to in this case on Exhibit B is attributable to the fact that in the first instance I took the total operating expenses of the Pulaski District and I attributed to North Carolina its part of those operating expenses for the Abingdon Branch, for that part of the Abingdon Branch in North Carolina on a straight mileage prorate. The percentage of the mileage of the Pulaski District was represented by the Abingdon Branch in North Carolina was 14% for each of the three years 1927, 1928 and 1929. I have the total figures of operating expenses of the Pulaski District for each of those three years. The total operating expenses for the Pulaski District for the year 1927 was $2,962,415.42. 14% of that amount originally assigned to North Carolina was $414,738.14. The North Carolina actual expenses were $131,504.47. That appears from Exhibit C. The difference in those

figures is $283,233.67. The difference developed by the State between my exhibits and the reports to the Corporation Commission is the same amount. By those figures I demonstrate that the entire difference between my reports is attributable to my methods in handling the Pulaski District. The same data for 1928 and 1929 is as follows: The total operating expenses for the Pulaski District for the year 1928 was $3,112,421.20. The amount assigned to North Carolina on a mileage prorate of 14% was $435,738.97. The actual operating expenses of the Abingdon Branch assigned to North Carolina, Vaughan Exhibit C, was $118,339.60. The differnece between the two amounts was $317,399.37, and is the figure quoted as being the difference in the operating reports to the State of North Carolina and my exhibits in this case.

The total total operating expense for the Pulaski District for the year 1929 is $2,789,246. The assignment of this amount to the State of North Carolina on a mileage prorate of 14% was $390,494.43. The actual operating expenses of the Abingdon Branch assigned to the State of North Carolina, Vaughan Exhibit C, is $131,393.02, a difference of $259,101.41, and is the same amount quoted previously by the State. The relative difference in the figures is the same for each of the three years. The figures which are the Railway Company's expense account are the same in every case. They were the same source from which I made my original report to the Corporation Commission, the Tax Commissioner and my exhibits in this case. The difference is my difference in my handling this report per straight mileage prorate and the system that Superintendent Smith has given us. I have testified that 14% is the mileage percentage in the Pulaski District and the Abingdon Branch. I will state why I changed the basis of the report to the Cor-

poration Commission and the Tax Commission when I came to make the particular report for this case. In going over the situation we realized that there were a great many expenses incident to the operation of the Pulaski District that were not incident to the Abingdon Branch, and for the sake of correctness we endeavored to procure the actual expenses of the Abingdon Branch, as filed in this case. If my memory serves me correctly, the first item we ran into was the amount of expenses of the dining cars, and knowing there were no dining cars in service on the Abingdon Branch, it caused us to look into the other items. It started it, that the apportionment expenses of the dining cars had been included in North Carolina. And finally my changes have resulted altogether in favor of the State of North Carolina in reducing the amount of expenses to the State of the branch operation.

RE-DIRECT EXAMINATION of Mr. Vaughan, by Mr. Cox:

The railway, in computing its expenses, keeps same by Districts. So that in compiling my Exhibit B, I compiled the Durham and Winston-Salem Districts on the mileage prorate. All I did in apportioning expenses of this District between Virginia and North Carolina was to apportion them on a mileage basis. I considered the operating conditions on both the Durham and Winston-Salem Districts the same throughout each District. The North Carolina conditions were similar to the Virginia conditions. The Abingdon Branch was not on a similar basis.

RE-CROSS EXAMINATION of Mr. Vaughan, by Asst. Attorney-General Seawell.

Q. I notice you constantly use the word actual as applied to the expenses of the Railroad in North Carolina. Do you mean by that there is no prorating expenses, that in each case you could tell actually the expenses in each case?

A. Some of the expenses were prorated.

As to the Durham and Winston-Salem Districts we took the expenses in the District in which the North Carolina Branch was a part, and we prorated that between that portion of the District lying in Virginia and North Carolina.

Q. You didn't do that as to the Abingdon Branch? A different system would have to be pursued as to that Branch?

A. Yes, sir.

Taking the Durham and Winston-Salem Districts, we were depending upon the similarity of conditions in these Districts and Virginia to support the fairness of the prorate. I don't state what those conditions are because I am not an operating man. It is necessary for me to depend upon the operating people for that information. I do not personally know. So far as I personally know, it is an assumption. I state that the difference between the total of operating expenses reported to the Corporation Commission for the years 1927, 1928 and 1929 and that reported on our Income Tax Return, and that reported on the Exhibits now filed with reference to the same matter, are caused by a different method in arriving at the same result. At all times, what we were aiming to get at was the actual operating expenses in the State. That was true with the report made to the Corporation Commission and Income Tax Return. They were accompanied by an oath of an officer. This differ-

ence in arriving at the operating expenses in North Carolina consisted in a closer inspection that certain expenses that heretofore had been allocated to this State were found to be inapplicable. And we have definitely assigned those costs which caused that difference to the Pulaski District, and more particularly to the Abingdon Branch in that District. I didn't intimate that there are any costs working to that end in the Durham or Winston-Salem Districts.

Q. And you further specified in regard to the Pulaski District that the items that caused it to be larger than your present table, was due to the fact that you had assigned to the Pulaski District certain expenses of dining cars that didn't belong there?

A. No, we had assigned a mileage prorate to the Abingdon Branch, and we found that there were no dining cars used on the Abingdon Branch, and that caused us to make an investigation and see if there were other matters that should not have been assigned to the Abingdon Branch.

Q. Didn't you specify that certain of those expenses were reduced because of the fact that heretofore there had been improperly assigned to the Pulaski District the dining car expenses?

A. That is one cause.

I don't state the other causes for the reason that when we found the dining cars had been included in these expenses, we called in the Superintendent to give the expenses on the Abingdon Branch and then prorated the actual expenses in order to get a more correct report.

Q. So you don't know what those causes are?

A. I haven't attempted to find out.

I should say there were other causes to the Abingdon Branch which caused this difference.

Q. Doesn't it strike you that this is an enormous figure?

A. Yes and no. We had followed the usual custom to prorate to the State 14%, but when we procured the actual expenses, we had been in error in using the 14%.

Q. You realize that you have not yet explained the enormous difference between the two?

A. Well, the total operating expenses for the Pulaski District for 1927 was $2,962,415.42; 14% of that amount assigned to North Carolina was $414,738.14, which was a prorate of the Pulaski Expenses.

Q. That explains what you did but not why?

A. It has been our custom to use a mileage prorate.

Q. What good could it do for you to do that if you cannot explain it?

A. It would take some little time to go into it. I have gone into it. What more can you want?

Q. I want the other matters that entered into this difference?

A. It will be necessary for us to take each one of those other 200 accounts.

Q. You don't know what those items of expenses that were improperly charged, other than that they related to the dining-car service?

A. The 14% of the prorating that we used for the Pulaski District was an incorrect compilation.

Q. That is all the explanation you can make?

A. (The witness did not answer.)

The Referee examined MR. VAUGHAN:

I spoke of the actual operating expenses of the Abingdon Branch. Our accounting books were kept so that they showed accurately. It was necessary for us to call on the superintendent. We handled the accounts by operating districts. He keeps a more detailed account. These actual expenses of the Abingdon Branch are correct. After I got the actual operating expenses, I made

the prorate by the number of miles in Virginia and North Carolina of that branch.

RE-CROSS EXAMINATION, of Mr. Vaughan by Asst. Attorney General Seawell.

Q. Can you give me off hand the difference and the relative proportions between the North Carolina expenses on its part of the Abingdon Branch and the North Carolina expenses on its part of the Durham District and its part of the Winston-Salem District and the manner in which you have arrived at those expenses in your present methods?

A. What do you mean by difference?

Q. If you have one total amount for the Winston-Salem District and another total amount for the Abingdon Branch, it strikes me there might be a difference in dollars?

A. Yes. I haven't any separation of those figures.

Q. Does such a separation appear in any of your reports or tables?

A. I could give certain figures for one year. I have here for the year 1927: Operating expenses assigned to the State of North Carolina on account of the Durham District $393,987.59; the Winston-Salem District $995,-443.26; Abingdon Branch $131,544.41; total for North Carolina, $1,520,935.32, as shown on Sheet 5 of Vaughan Exhibit J.

A difference of $283,233.67 is disclosed between the report of the Railway to the Corporation Commission for 1927 for expenses in North Carolina, and that shown by my revised total.

Q. Now in view of the fact that for that year, the total expenses of the Abingdon Branch is $131,544.41 and the total difference is $283,233.67, being a difference which is nearly or quite double for the Abingdon

Branch, don't you want to revise your statement that the difference was due to certain things which had been improperly charged to North Carolina?

A. I don't think that I do, because I have not studied it. We saw that the dining cars had been assigned there and that led us to look into the other matters. And we later assigned the difference in calculation to the Abingdon Branch.

Referee: He said that 14% represented the difference between that sum and the actual expenses of the Abingdon Branch in North Carolina.

Mr. Seawell: I have now developed to the Court the whole expenses were $131,544.41 and the discrepancies must have occurred in the other districts.

I couldn't say that a part of the discrepancy is attributable to the method employed in getting the expenses of the Durham and Winston-Salem Districts also.

Referee: The Durham Branch was a District by itself and they kept the expenses of that district separate.

Mr. Seawell: The purpose is this: I understood the witness to say in explaining the difference in expenses disclosed by the report to the Corporation Commission and that which is disclosed by the present exhibits was entirely attributable to differences which had occurred in handling the calculation of the Abingdon Branch.

Referee: He said his figures and work sheet showed that there were two million dollars expenses on that district and they took 14% of that making some $414,000, and then when they found it was wrong, they went back and made the correction. There couldn't be an error in the Durham and Winston-Salem districts that would have anything to do with this $283,000. The difference was due entirely as to how the expenses were made in the Pulaski District.

Mr. Seawell: I am making the point that the difference was entirely too much, too vast to be accounted for in view of the fact that the total of the Abingdon Branch was $131,544.41.

Referee: That looks like it was a very bad mistake, but now they propose to give the State credit for that.

Mr. Seawell: It was impossible to make such a vast mistake.

Referee: They had some $414,000 charged to the Abingdon Branch. That was 14% of the total and they didn't use that method or system at all in arriving at the $131,000.

Mr. Seawell to Mr. Vaughan:

Q. Mr. Vaughan, I understood you to say that you are not prepared to say now in detail what those differences were except the dining-car system?

A. Yes, we know that should not have been assigned.

K. V. CONRAD, a witness of lawful age, being first duly sworn, testifies as follows:

I am Assistant Superintendent of Transportation of the Norfolk and Western Railway Company, and have been employed in the Transportation Department of the Railway for 28 years. The office of the Superintendent of Transportation has, among other things, general supervision of the movement of all trains, traffic and equipment, the development of the transportation service, maintenance of records of the movement of all equipment and supervision of weighing, car hire, etc.

I will describe briefly the Norfolk and Western Railway, which we will hereinafter call the "Railway," in its physical aspects, giving among other things for example, the location and length of its main line, its total system mileage and a description of the portions of the system that lie in North Carolina.

The Norfolk and Western Railway Company is a Virginia corporation conducting an intra and interstate railway business in the States of Virginia, West Virginia, Ohio, Maryland, Kentucky and North Carolina. The total mileage of its entire system is 2,241.57 miles, of which 131.01 miles lie within North Carolina, which I shall hereinafter call the "State." The general and executive offices of the Railway are at Roanoke, Virginia.

A map showing the lines of the Railway Company is submitted herewith as an exhibit (designated Conrad Exhibit No. 1). The main stem of the Railway extends from Norfolk, Virginia, to Columbus, Ohio, a distance of 663 miles, and penetrates only the States of Virginia, West Virginia and Ohio. This portion of the Railway is double track throughout, including belt lines around Lynchburg, Farmville and Petersburg, Virginia, which are operated as double track.

From this main line single track branches radiate in various directions, three of which penetrate the State of North Carolina. One of these branches, known as the Winston-Salem District, runs from Roanoke, Virginia, to Winston-Salem, North Carolina, a distance of 121.81 miles, of which 75.85 miles are in Virginia and 45.96 in the State. A second of these branches, known as the Durham District, runs from Lynchburg, Virginia, to Durham, North Carolina, a distance of 118.18 miles, of which 73.74 miles are in Virginia and 44.44 are in the State. The third of said branches runs from Abingdon, Virginia, to Elkland, North Carolina, a distance of 78.80 miles, of which 38.19 miles are in Virginia and 40.61 miles are in the State. This third or Abingdon Branch is a portion of the Railway's Pulaski District, which runs from Radford, Virginia, to Bristol, Virginia, with several branch lines radiating in various directions, including among others said Abingdon-Elkland Branch.

I will state the proportion of the Railway's total mileage located in North Carolina.

On December 31, 1927, the Railway's mileage of 131 miles in the State was 5.84% of its total mileage of 2,241.57. Including second and third main tracks, the total main track mileague operated was 2,875.90 miles, of which the Railway's 131 miles in the State is 4.56%.

In my description of the Railway, I referred to the branches from Roanoke to Winston and from Lynchburg to Durham as the Winston and Durham districts respectively. I will explain just what the word "District" means in that connection.

For purposes of operating and accounting, the Railway Company divides its lines into what are called operating districts. Each of these districts is generally homogeneous in character of road and traffic. Two or more of these districts make up an operating division, and subordinate officers of operating divisions are assigned to duties on specified operating districts. Based on experience, the Railway operating practice provides for through freight train operation over distances of about 125 miles or less. Some operating districts include two train districts on account of the length of road covered. Other operating districts include only one train district. In all there are eleven operating districts, the Winston District being one of same and the Durham District one.

I will state what portion of the Railway's system carries the greatest tonnage, what constitutes the principal tonnage carried, what proportion of the total system tonnage this principal tonnage comprises and where it originates and principally goes.

Where the main line of the Railway from Norfolk, Va., to Columbus, Ohio, passes through southern West Virginia, there is located a large coal field which pro-

duces on the main line and branches therefrom in this section the greater part of the whole tonnage carried by the Railway. In the year 1929 the Norfolk & Western carried 59,712,795 tons of revenue paying freight. Of this amount a total of 48,204,273 tons was originated on the line of the Railway, and the bituminous coal originated on the line of the Railway and included in the preceding totals amounted to 42,038,015 tons.

The great bulk of this coal tonnage (about 79.6% thereof) is hauled from West Virginia west to Columbus, Ohio, and delivered to connecting lines of the Railway at that point, or east to Norfolk, Virginia, and delivered there to vessels, and never leaves the main line after the main line is reached from the coal field branches. Such portion of the coal as does leave the main line at points between termini and radiate off the main line on to the various branch lines necessarily travels a considerable distance on the main line before reaching the branch lines.

Seventy-two per cent of the total tonnage originated on the line of the Railway in 1929, and 67.7% of that originated in 1930 moved from the coal fields west and practically all of this was given to connections at Columbus, Ohio.

A statement showing tons of coal originated at mines on the N. & W. Railway by coal districts and by direction of movement, with figures shown combined for the years 1927, 1928 and 1929 and separately for the year 1929, is submitted herewith (designated Conrad Exhibit No. 2). This shows that over 70% of the coal tonnage moved west during the years mentioned.

I will state how the freight traffic density on the Railway's lines in North Carolina compares with that on its lines outside the State, and what proportion of its total revenue ton miles in the State is represented by coal and what proportion by all other commodities.

There is submitted herewith a statement showing comparison of total revenue tons one mile and revenue coal tons one mile, as recorded for the various States in which the Norfolk & Western operates, separately for each of the years 1927, 1928 and 1929 (designated Conrad Exhibit No. 3). As shown by this statement, the average revenue ton miles per mile of road, or freight traffic density, was materially less in North Carolina than in any of the other States through which the Railway operates. The statement shows that the average revenue ton mile per mile of road was for the year 1927 seventeen times greater in Ohio than in North Carolina, ten times greater in West Virginia than in North Carolina and four times greater in Virginia than in North Carolina. These are the main line states. The average for the system is over seven times greater, and in the system average is included the average of all the branch lines. While this statement also shows that the proportion of coal tonnage one mile to total tonnage one mile is very much less in North Carolina than for the system as a whole, it further shows that for 1927 the revenue coal ton miles in North Carolina constituted over half the total ton miles in the State. And for the other years, the revenue coal ton miles in North Carolina was about 45% of the total ton miles therein.

I have prepared a statement showing the density of traffic on the various operating districts of the Railway so that a comparison may be made between the density of the Durham and Winston districts and the density on the Railway's districts in other states, and I will state how the density on the districts entering North Carolina compares with the density of the Railway's districts located entirely outside the State.

I have for the year 1929 and same is herewith submitted (designated Conrad Exhibit No. 4). The net

ton miles shown on this statement include company material as well as revenue freight. The road mileage for the operating districts includes branch lines attached thereto. The operating district from Roanoke to Winston-Salem and the district from Lynchburg to Durham do not have any branch line mileage. It will be noted that the density, or ton miles per mile of road, on these districts is very substantially less than the average for the system as a whole, and with the exception of the Pulaski District, these North Carolina districts have less density of traffic than any others. The Abingdon Branch, which also extends into North Carolina, is attached to the Pulaski District, for which the traffic density averaged only 769,000 ton miles per mile of road as compared with average of 7,937,000 ton miles per mile of road for the system. With the exception of the Durham District, the Pulaski District has the least density of traffic of any district on the system, but this is largely due to the fact that the Abingdon-Elkland Branch and the Galax-Fries Branch, on which traffic is very scant, are a part of the Pulaski District. I can, if necessary, prepare similar exhibits for the years 1927 and 1928. I have not done so because of the expense and time required therefor and because also the showing made by this Exhibit 4 is sufficiently typical of 1927 and 1928 to be used as a basis for those years also—the totals being different but the ratios being substantially the same, there being no material difference in the character and direction of traffic in the various years, though the volume was greater in some years than others.

I have also prepared a statement which illustrates the density of traffic on the main line with that of the traffic on the Durham and Winston districts, and I will state, briefly, how density on the Winston and Durham districts, as shown by this exhibit, compares with that of the main line.

For the year 1929, as shown by Exhibit No. 4, for the system the Ton Miles per Mile of Road averaged 7,937,000. This was equivalent to an average of 21,745 Ton Miles per Mile of Road per day. For purposes of comparison with another exhibit, which will be later referred to, it will be noted that on this basis the average Ton Miles per Mile of Road for 12 days for the system as a whole is 260,940. We recently made a special study to determine the Net Ton Miles and Net Ton Miles per Mile of Road on the main line from Norfolk to Columbus and on certain side lines. This study covered the movement on the first Thursday of each month for the year 1929, and statement compiled as result thereof is submitted herewith (designated Conrad Exhibit No. 5). The figures shown on this exhibit represent the total movement on twelve days during the year 1929, and it will be noted that for the portion of the main line from Iaeger, W. Va., to Norfolk, Va., over which eastbound coal tonnage is handled, the Ton Miles per Mile of Road averaged 519,510, while on the portion of the main line from Bluefield to Columbus, over which westbound coal is handled, the Ton Miles averaged 1,261,519. The twelve-day Average Ton Miles per Mile of Road from Roanoke, Va., to Winston-Salem, N. C., was 69,624, and from Lynchburg, Va., to Durham, N. C., was 17,707. This shows that from Bluefield west the density was 18 times greater than on the Winston District and over 70 times greater than on the Durham District. From Iaeger to Norfolk, the density would be over seven times greater than on the Winston District and over 30 times greater than the Durham District.

Thursday was selected for the reason that in the early part of the week the movement is influenced somewhat by the fact that there is no coal loading on Sunday, and

on Friday and Saturday coal loading tends to drop off. Because of the amount of work involved, it was not feasible to work the statistics for more than one day in each month, and Thursday was selected as being the most representative day.

I have an exhibit that will graphically visualize the differences between volume and density of traffic on the Railway's main line and on its various branches, and will state briefly how the tonnage in North Carolina compares with that on the main line as shown thereby.

I herewith submit a map covering traffic volume for the year 1925 as prepared from records of the Railway Company for H. H. Copeland & Son of New York. While this map was prepared for the year 1925, it indicates the relative density of traffic for the years 1927-1929. Though the Railway Company's gross traffic for the years 1927-1929 was in excess of that of 1925, the relative direction and density on the various portions of the road would not substantially change. (This map is designated as Conrad Exhibit No. 6.) From this exhibit it would appear that neither the tonnage going into the State nor that coming from same northward to the Railway's main line is comparable to that carried on the main line.

The unit cost of moving traffic varies with volume and density, such cost diminishing as volume and density increase. Expenses for Maintenance of Way and Structures particularly do not increase relatively with traffic volume. Studies made by the American Railway Engineering Association indicate that something more than 55% of Maintenance of Way and Structures expenses do not vary with use. In a statement prepared by one of our Accounting Department witnesses and for convenience filed at this point as Conrad Exhibit 7, the actual expenditures for Maintenance of Way and Structures on

the lines from Lynchburg, Va., to Durham, N. C., from Roanoke, Va., to Winston-Salem, N. C., and from Abingdon, Va., to Elkland, N. C., divided on the basis of road mileage to obtain the North Carolina proportion thereof, are shown, contrasted with the figures that would be developed by applying against operating revenues in North Carolina the system ratio of Maintenance of Way expenses to system revenues. The excess of actual expenditures over results obtained by application of the system ratio is a reflection of a lower density of traffic on the lines in the State in North Carolina. For example, we definitely know what the expense is for Maintenance of Way and Structures on a given district. As shown by Exhibit 7, North Carolina's portion of such Maintenance of Way and Structures 1927 expense is $347,524.63. Yet if we determine these expenses by applying the system ratio of expenses to State earnings, we would, as shown by Exhibit 7, assign to North Carolina only $195,975.12 of such expense. On Sheet 2 of Exhibit 7, the system ratio of Maintenance of Way and Structures expense to gross operating revenues is shown to be 14.16%. This ratio applied to the North Carolina gross operating revenues is what produces the figure $195,975.12. As the Maintenance of Way expense in North Carolina, however, was over $347,000.00, this difference reflects the lower density of traffic in North Carolina.

Q. How are such expenses, for example, as enginehouse expenses or care of engines at terminals, train dispatching, etc., affected by the volume of traffic?

A. What are known as Transportation Expenses under the accounting rules of the Interstate Commerce Commission are also affected by volume of traffic. For example, Enginehouse Expenses or the expense of cleaning, lubricating, turning and caring for locomotives at

terminals, can be and are maintained on a lower level at terminals where a large number of locomotives are handled as compared with cost at terminals where the number handled is relatively small. Train dispatching and telegraph expenses are lower per unit of traffic on the main line than on side lines where the volume of traffic is light. On the main line where volume of traffic is sufficient to justify double track operation, train movement is handled with very few train orders, whereas on single track, train order movement is more frequently necessary and a relatively large number of telegraph offices must be maintained for a comparatively small volume of business.

To illustrate more fully what I mean by saying, for example, that train dispatching and telegraph expenses are lower per unit of traffic on the main line than on side lines where the volume of traffic is light, the expense of maintaining open telegraph offices with a telegraph operator on duty is the same whether the operator handles five trains or ten trains during his tour of duty. Furthermore, the main line is double track and equipped with automatic signals and issuance of train orders for passing, sidetracking, forward movement and other purposes is infrequently necessary. The movement of trains is largely by rule, time table and signal indication, the delays and complications due to the waiting for and passing of trains from the opposite direction being obviated by the double track. Hence, the number of train dispatchers and telegraph operators required on the main line districts is no greater than on the single track side lines, although the volume of business handled is much greater.

Q. To what extent do physical characteristics of a line of railway, such as grades, affect the cost of moving traffic, and how do the grades on the Durham and Winston districts compare with those on the main line,

and to what extent is this reflected, if at all, in the loads that engines of the same size pull on the main line and on the Durham and Winston districts?

A. In addition to the effect of the volume of traffic, Transportation Expenses, also expenses for maintenance of locomotives, are controlled in large measure by the character of line. In this connection, there is submitted herewith (designated as Conrad Exhibit No. 8) a blueprint sheet showing ruling grade profiles of the main line from Norfolk, Va., to Columbus, Ohio, and for important side lines and branches. The ruling grade shown on this sheet represents the maximum grades between the points expressed in terms of percentage, i.e., a 1% grade means a rise of one foot in a distance of 100 feet. The grades above the line are against traffic going toward the right and those below the line are against traffic going toward the left. As previously shown, the major portion of our total traffic movement is over the main line extending from Norfolk, Va., to Columbus, Ohio, and the coal traffic volume to the West makes up the larger part of the total movement. All coal traffic originates on or comes on to the main line west of Bluefield, West Virginia, which is indicated on the attached profile statement at about Mile Post 360. From Bluefiled west there is only one short grade of about 3 miles of 1.1% between Flat Top and Coaldale, West Virginia, and beyond Coaldale the grades against westbound movement do not exceed .32 of 1% to a point just outside of Columbus, Ohio, yard, where it rises to .4% and entering the yard it is .7 of 1%. Eastbound from the coal field, which largely lies between Williamson and Bluefield, West Virginia, there are grades against eastward movement ranging up to 2% between Eckman and Coaldale, 1.23% between Coaldale and Bluefield, 1% between Walton and Christiansburg, and 1.16% between Roanoke and Blue

Ridge. All of these grades (mentioned in the last sentence) are comparatively short and volume of traffic movement over the lines comparatively heavy, and pusher service on the grades is maintained. That is, a helper engine is stationed at the foot of the grade and during the tour of duty of a crew, a number of trains will be helped over the grade by one helper engine and crew.

From profile of the line from Roanoke, Va., to Winston-Salem, N. C., it will be noted that there are five separated points at which grades adverse to southbound movement are equal to or greater than 1.48%. Also on this line there are five separated points at which grades adverse to northward movement are equal to or greater than 1.5%. Because of light traffic volume and separated location of these grades, pusher service cannot be economically employed, and locomotives handling trains between Roanoke and Winston-Salem can only be given the tonnage they can handle without help over the steepest grade on the entire district.

From profile of the line Lynchburg, Va., to Durham, N. C., it will be seen that there are grades at seven separated points which are adverse to southward movement, which are equal to or greater than 1.52%, the steepest being one of 2.6%, just out of Lynchburg. Northward on this line we have grades at six separated points equal to or greater than 1.52%. On this line only one through freight train is operated daily in southward direction, which is the controlling or heavy direction of traffic. When there is more tonnage than can be handled with one engine over the 2.6% grade out of Lynchburg or the 1.75% grade between that point and Rustburg, a helper or second engine is used on the train Lynchburg to Rustburg. This, however, is only occasionally.

The effect of grades as above mentioned is indicated by the fact that from Roanoke to Winston-Salem, trains operated with one of our large mallet locomotives of 240-pound steam pressure can only handle 2,000 tons of weight, that is, weight of cars and contents; whereas westbound from Eckman, W. Va., to Williamson, W. Va., trains operated with this same type of locomotive can and do handle 10,000 tons, and from Williamson, W. Va., to Portsmouth, Ohio, 10,100 tons are handled, and from Portsmouth, Ohio, to Columbus, Ohio, 8,500 tons are handled. The same type of locomotive eastward handles from Bluefield to Roanoke on the main line 7,800 tons, with helper over the seven-mile grade between Walton and Christiansburg; eastward from Roanoke, Va., to Crewe, Va., it handles 6,000 tons with helper over the five-mile grade between Roanoke and Blue Ridge. Eastward between Crewe and Norfolk, a small mallet with average capacity of about 75% of that of the larger locomotive, handles 7,500 tons, whereas, this same type of locomotive which is used between Lynchburg and Durham will handle southward on that line only 1,500 tons when furnished helper between Lynchburg and Rustburg. In short, engines of the same size can pull from three to five times more on the main line than on the districts entering North Carolina—according to the locality of the main line on which the pulling is done.

I have prepared an exhibit comparing the amount of tonnage that is on the average hauled in a single train on the Durham and Winston districts respectively with the system as a whole, the size of the locomotives used on these districts with those on the system as a whole and the fuel consumption on these districts with that of the system as a whole.

There is submitted herewith (designated as Conrad Exhibit No. 9) a statement showing Freight Locomotive Miles, Freight Train Miles, Gross Ton Miles, Average Gross Ton Miles per Train Mile, and comparison of Locomotive Ton Miles per Train Mile and fuel consumption per 1,000 Gross Ton Miles by operating districts for the year 1929. The Gross Ton Miles as shown on this statement represent the weight of cars and lading times miles hauled. Locomotive Ton Miles represent the weight of locomotive operated times the miles run. It will be noted that the Average Gross Ton Miles hauled per Train Mile for the system as a whole was 3,191 tons, whereas for the line, Lynchburg, Va., to Durham, N. C., the average was 884.6 tons, and for the line, Roanoke to Winston-Salem, only 1,485 tons, whereas the weight of locomotive used per train mile was for the Durham District 179.4 tons, for the Winston-Salem District, 293.6 tons, and for the entire line only 254.4 tons.

This weight of locomotive per train mile is obtained by dividing for the Winston-Salem District, for example, the 130,633,801 freight locomotive ton miles shown on Exhibit 9 by the 445,328 freight train miles shown for the Winston District on said exhibit, the result giving in tons the average freight locomotive weight per freight train. If the locomotives were in every instance of precisely the same size, we would be able to say that the same locomotive hauled on the average 3,191 tons per train on the system, 884.6 tons on the Durham District and 1,485 tons on the Winston District, but on account of the fact that the size of locomotives used is not in every single instance the same, we express the weight in the terms of averages, the result being that on the Winston District a greater average weight of locomotive per train is employed than on the system and on the Durham District. Or expressed otherwise, on the Durham Dis-

trict each ton of locomotive hauls on the average 4.93 gross tons (884.6 divided by 174.9), each ton of locomotive on the Winston District hauls on the average 5.05 tons (1,485 divided by 293.6), and each ton of locomotive on the system as a whole hauls 12.54 tons (3,191 divided by 254.4).

As shown by Exhibit 9, the coal consumption per 1,000 Gross Ton Miles moved was 312.7 pounds on the Durham District, 307.1 pounds on the Winston District and only 135.1 pounds for the line as a whole. In short, the system as a whole on the average hauls 2½ times as much tonnage per train as on the North Carolina districts and with 3/7 of the fuel consumption on the North Carolina districts. On the Winston District engines are employed as large as those used on any other part of the system. On the Durham District on account of the much lighter tonnage to be hauled, engines are the same size as those from Crewe to Norfolk, but these are smaller than the largest on the Winston District.

Q. Are the cost of wages of trainmen and the cost of fuel relatively higher or lower on the districts entering North Carolina than on the system?

A. Wages of enginemen and trainmen are paid for the number of miles run and hours employed, without regard to the tonnage hauled. These expenses, therefore, are higher per unit of traffic according to the number of engine and train miles required to move a given volume of traffic. A statement is submitted herewith (designated as Conrad Exhibit No. 10) showing comparison of Freight Train Miles, Gross Ton Miles, Net Ton Miles, cost of fuel for freight locomotives and wages of freight enginemen and trainmen for the years 1927, 1928 and 1929, separately for the Durham District and Winston District and the entire line. The item of Net Ton Miles as shown on this statement represents tons of freight

multiplied by the number of miles carried. The statement shows, for example, that the actual cost of fuel and wages of enginemen and trainmen for the Winston-Salem District for the year 1929 amounts to $426,684.95 (i.e., the figures $168,160.56 + $142,735.52 + $115,788.87) and that these expenses per Gross Ton Mile were more than two and one-half times as great as the average of these expenses per Gross Ton Mile for the system.

In support of this statement, it will be noted that the gross ton miles in 1929 on the Winston District were 661,307,000. Dividing the $426,684.95 by 661,307,000, we find that the average cost of fuel, enginemen and trainmen per 1,000 gross ton miles is 64½c. As compared with this, the gross ton miles for 1929 on the system were 33,127,982,000, whereas the cost of fuel, freight enginemen and freight trainmen was $8,563,722.90 (i.e., $3,491,229.91 + $2,534,677.82 + $2,537,814.97.) This $8,563,720.90 divided by the 33,127,982,000 gross ton miles produces as the system average cost of fuel, enginemen and trainmen per 1,000 gross ton miles the sum of 25.85c. The 64.5c for the Winston District is substantially 2½ times 25.85c or 2½ times the system cost. The detail of the average cost of fuel, enginemen and trainmen is further elaborated on said Exhibit 10. Had these expenses on the Winston District been proportionate with the system average expense for transporting equivalent weight, the total for the Winston-Salem District for the year 1929 would have been only $170,947.86 (i.e., 661,307,000 × 25.85) or about $256,000.00 less than they actually were. Similar calculations can be made for the Durham District. Hence, the costs of trainmen and fuel are relatively much higher on the North Carolina districts than on the system.

I have given reasons why the transportation and maintenance of way expenses are higher on the branches entering North Carolina than on the balance of the system. I will state the situation with respect to maintenance of equipment expenses.

A. 14. Maintenance of equipment expenses make up the larger part of the total of railroad operating expenses other than those of Maintenance of Way and Transportation. On one of the exhibits that will be introduced by one of our Accounting Department witnesses, which will be designated "Vaughan—Exhibit A, Sheet 2," it will be observed that for the year 1927 Maintenance of Equipment expense comprised 30.51% of all system operating expenses, Maintenance of Way and Structures comprised 22.54% thereof and Transportation comprised 41.59% thereof, the total of these three being 94.64% of all operating expenses for the year, Maintenance of Way and Structures and Transportation together being 64.13% of the total. These same expenses figured upon the basis of a mileage prorate for the North Carolina mileage show that Maintenance of Equipment comprised 27.50% of the North Carolina expense, Maintenance of Way and Structures 22.85% thereof and Transportation 45.94% thereof, the three together totaling 95.29% of the expense of operating in North Carolina.

The expenses for maintenance of equipment are partly for repairs, depreciation and retirements of locomotives, and partly for the same items of cost in connection with cars. Exhibit No. 7 of two sheets heretofore introduced shows separately these items of expense for locomotives and for cars, as assigned to North Carolina, and what these expenses would be if developed by application of system ratio of these expenses to system revenues. For example, on Sheet 1 of said exhibit, it will be noted that the expense of locomotive repairs, depreciation and

retirements apportioned to North Carolina on the basis of a mileage prorate of such expense for the branches or districts entering the State is $248,427.58, whereas if we applied the system ratio of locomotive repairs, depreciation and retirements to the North Carolina earnings, these expenses would be $123,730.05. The detail of this calculation is shown on Sheet 2 of said Exhibit 7, wherein it will be noted that the system locomotive repairs, depreciation and retirements amounted to $9,913,600.14. This figure constituted 8.94% of the system revenues for the year 1927. Applying on Sheet 2 of this system 8.94% to the North Carolina revenues, to-wit, $1,384,005.08, we obtain the figure $123,730.05. Per unit of traffic, the expenses for repairs, depreciation and retirements of locomotives are higher in North Carolina because of the light train load a locomotive can handle on our lines in North Carolina as compared with the average train load handled on the system as a whole. Comparison of the train load has been given previously. As previously stated, the train load is smaller in North Carolina principally because of the grades on the branches entering the State, but wherever the train cannot be loaded heavily a greater number of trains and hence a greater number of locomotives are required to haul the same volume of traffic, and hence the maintenance cost is higher per unit of traffic.

My foregoing testimony shows why locomotive maintenance costs are higher on the branches entering North Carolina than outside thereof, and I will state the situation with respect to the cost of car maintenance on the districts in the State and outside thereof.

The expense of car maintenance is relatively higher in North Carolina and this is due to the fact that traffic handled in the State does not load as heavily per car as the average for the system as a whole. A statement is

submitted herewith (designated as Conrad Exhibit No. 11) showing comparison of traffic transported in North Carolina and traffic for the entire system for the year 1929. This exhibit shows for the State of North Carolina and for the system the number of cars of freight handled, tonnage, tons-one-mile, total revenue received by N. & W. and average N. & W. revenue per ton mile and average tons per car, separated as to coal and other freight. It will be noted that the average tonnage per car for coal handled in North Carolina was 52.6 tons, while the system average was 60.7 tons. For freight other than coal, the average tons per car in North Carolina was 22.6 tons and for the system was 27.6 tons.

"Conrad — Exhibit 11" also affords a comparison of revenue received by the Railway from all freight transported in the State with the revenue from all freight transported on the system, and I can make this explanation with respect thereto.

It does upon the per ton mile basis. While this Exhibit 11 shows that the total average revenue from all freight handled in North Carolina is almost 1½ times as great as the average system revenue per ton mile, this showing has no significance because it is explainable by the fact that the average system revenues from all freight are greatly diluted and lowered by the enormous volume of coal carried on the system. Coal constitutes over 80% of the total tons-one-mile transported on the system and around 50% of the tons-one-mile transported in the State, as shown by Exhibit 3. Coal, though a heavy loading commodity capable of being carried at relatively low transportation cost, brings relatively low revenue, and when the system's average revenue from all classes of freight is computed, the volume of coal, which is such an enormously heavier proportion of the system's traffic

than it is of North Carolina traffic, necessarily makes the system average revenue per ton mile lower.

That the higher average revenue per ton mile in North Carolina has no significance in this case is demonstrable by the following:

We can eliminate coal from consideration and treat the situation just as if there were no coal carried in either North Carolina or on the system. Then by reference to Exhibit 11 we find that the average revenue per ton mile in North Carolina from freight other than coal is .0135 per ton mile. The average revenue per ton mile for freight other than coal on the system is .0127, but the average tons per car in the State is 22.6 tons, whereas, on the system it is 27.6 tons. Multiplying .0135 by 22.6, we find that the average revenue per car mile in the State for freight other than coal is 30.51c, and multiplying .0127 by 27.6, we find that the average revenue per car mile for freight other than coal on the system is 35.05c.

Now, as the cars for freight other than coal are of the same size in the State as for the system and yet haul less tonnage per car, it is obvious that the gross weight of car and contents to be moved in the State is greater per unit of paying load than for the system as a whole, and also that measured by the mileage of the cars which are the actual units of haulage, the revenue received in the State is relatively less on traffic other than coal than it is for the whole system. The point can be further clarified in the following manner:

For the railroad to earn in the State the average revenue of .0135 per ton mile on freight other than coal, it must haul not only the contents of the car, but the car itself. Now, the weight of a box car, for example, is 21 tons. This 21 tons plus the load of 22.6 tons makes the total weight 43.6 tons. The State's 30.51c divided

by 43.6 tons makes the revenue per gross ton mile in the State .69 of a cent, whereas for the system the car and contents weigh 48.6 tons (21 + 27.6) and this divided into the system's 35.05c produces a revenue per gross ton mile of .72 of a cent. Now, as the costs of handling traffic per gross ton mile are much heavier in the State than on the system, it is obvious that the system as a whole receives more revenue per gross ton and yet hauls it at less cost. In addition to this, it will be noted from Exhibit 11 that the traffic density or the net tons-one-mile per mile of road in North Carolina is 475,318 tons (62,281,434 divided by 131.01 miles), whereas on the system the net tons-one-mile per mile of road is 1,243,196 (2,786,711,165 divided by 2,241.57); or expressed otherwise, the system hauls per mile of road 2.6 times more merchandise other than coal than the branches in the State with greater revenue and less cost per gross ton.

In the foregoing comparison, I have ignored the coal traffic in both the State and on the system. However, both the State's lines and the system carried coal. Not only is the average revenue per ton mile for coal .2 of a mill lower in North Carolina than on the system, but as an average for the system, the system coal cars carry 8.1 tons more coal per car than is carried in North Carolina. Hence, the average revenue per car mile in North Carolina from coal would be 26.3c, whereas on the system it would be 31.56c, a difference of over 5c per car mile. Therefore, separating the revenue from coal and all other commodities, it will be noted that on the system each carload of each class of commodity brings in relatively higher revenue. At the same time, the expense of moving coal as well as other freight is relatively higher in the State than for the system as a whole for the reasons previously stated.

The revenue as shown on Exhibit 11 and the computations based thereon reflect the revenues received by the Railway, including portions of through rates on traffic originating or destined beyond the Railway's rails. These through rates are divided by agreement and the divisions are not uniformly based on the distance hauled by each carrier.

I will state how volume and density of traffic on the Railway's mileage in North Carolian compare with that of other Railway lines in the State.

From Exhibit 11 it will be observed that the Railway transported roughly 260 tons-one-mile of coal for every ton-one-mile thereof in the State and roughly 43 tons-one-mile of cargo other than coal to every ton-one-mile thereof in the State. These figures are developed by comparing the 52,630,604 tons-one-mile of coal in the State with the 13,943,567,206 tons-one-mile of coal on the system and by comparing the 62,281,434 tons-one-mile of cargo other than coal in the State with the 2,786,-711,165 tons-one-mile of cargo on the system.

This together with the other facts heretofore mentioned indicate that the density of traffic on the Railway's lines outside of North Carolina is much greater than that on its branches in the State. The situation of the Railway in North Carolina is in this respect different from that of all other important railroads operating there. The Southern Atlantic Coast Line, Seaboard Air Line, Clinchfield and Norfolk-Southern all have their main lines in the State, and it is reasonable to suppose that their main lines have their greatest volume and density of traffic. As contrasted with these roads, the Railway's mileage in the State is of the nature of branch lines, on which traffic is light as compared with that on the main line.

I will describe with respect to the expense of operating, conditions on the North Carolina and Virginia portions of the Winston and Durham districts.

Transportation conditions on the Durham and Winston districts are almost identical throughout the length of both districts. The same train service is operated over both the Virginia and North Carolina portions of these lines. All passenger trains run through between Lynchburg and Durham and Roanoke to Winston-Salem. Likewise, all freight trains are operated through between Lynchburg and Durham and Roanoke and Winston-Salem, except way freight locals to perform switching at stations and load and unload small quantities of less than carload freight. However, the same mileage of local trains is operated in Virginia and North Carolina on these districts. There are no large communities between the termini of either district, the two largest being Martinsville, Va., and Rocky Mount, Va., on the Winston District, the population of the former being about 4,075 and the latter about 967. On the Virginia end of the Winston District there is some production of furniture, which makes the freight traffic density slightly higher on the Virginia end than on the North Carolina end of this district. Otherwise, the character of the tributary territory on each the Durham and Winston districts is generally homogeneous throughout. As the slightly higher tonnage in Virginia does not materially affect cost of maintenance of way and the train mileage operated on these districts is identical in both states, for the reasons previously given, transportation, maintenance of way, maintenance of equipment, and in fact all other operating expenses, are substantially the same throughout the length of both districts. A division of operating expenses of the two districts based on proportion of road mileage in each State is regarded by the

Railway Company as sufficiently accurate. Such division is currently made for our own purposes.

Heretofore in making comparisons between the density of traffic on the Railway's mileage in North Carolina and its mileage outside the State, my contrasts have been between the Durham and Winston districts and the Railway's lines outside the State. I will now describe briefly traffic conditions on the Abingdon Branch.

The branch line extending from Abingdon, Va., to Elkland, N. C., is, as previously stated, operated as a part of the Railway Company's Pulaski District which extends from Walton, Va., to Bristol, Va., and includes branches connecting therewith. The traffic on the Abingdon Branch has been for many years very sparse, the branch having been originally constructed for lumber, which has been largely cut out. During the year 1929 the average tonnage of freight inbound per month on the Abingdon Branch was 7,824 tons, and average movement of freight forwarded outbound per month was 10,609 tons, or an average of only about 610 tons per day both inbound and outbound. During the month of August, 1930, selected as a typical month, the average freight car miles per mile of road per day on this branch was only 15.6 by comparison with average of 717.5 for the entire system. On this Abingdon-Elkland Branch the following train service is operated:

One passenger train in each direction between Abingdon, Va., and West Jefferson, N. C. (West Jefferson being 21 miles south of the Virginia line.)

One freight train in each direction between Abingdon, Va., and West Jefferson, N. C.

One mixed passenger and freight train in each direction between West Jefferson, N. C., and Elkland, N. C.

This branch line does not connect with any other line of railroad and is entirely dependent upon traffic

destined to points on the branch or originating thereon.

Also heretofore in making comparison between various aspects of operating costs and conditions on the Railway's mileage in the State and that outside the State, I have dealt principally with freight traffic in the effort, to develop the fact that the system operating ratio would give to North Carolina the benefit of the main line's low operating cost. I have this to say respecting the application of the system ratio to passenger operations.

The statements previously made by me have dealt principally with the applicability of the system operating ratio as relating to freight traffic. The expenses of passener train operation are affected by light freight traffic density, in that there is a small traffic movement over which to spread the expense of maintenance, station expenses, etc. Other reasons why the system operating ratio is not properly applicable in determining net income earned in North Carolina, as relating particularly to passenger train operation, are shown by the statement submitted herewith (designated Conrad Exhibit No. 12) which reflects for each North Carolina and the entire line the total number of passenger train miles, total passenger service expenses, total passenger service revenue, total passengers one mile, average of expenses and revenues and passengers per train mile, cost of wages of enginemen and trainmen and cost of fuel per train mile, with comparison of the ratio of coal and wage cost for North Carolina per train mile to the system average cost, and comparison of similar ratio to earnings per train mile.

From this Exhibit 12 it will be observed that while there is very little difference between the cost of operation of passenger trains in North Carolina and on the system, nevertheless the system revenues for the same expenditure were more than twice those of North Caro-

lina. These facts are reflected by Items 12, 13, 20, 21 and 22 of the exhibit. Train mile costs were somewhat larger on the system because of the greater number of cars handled per train, but this excess cost per train mile is much more than offset by the fact that system revenues per train mile were more than twice those of North Carolina. The true comparison lies in the passenger train car mile contrast of expense and revenues embodied in Items 12, 13, 20, 21 and 22, which reflect the unit basis of computing revenues and expenses.

As shown by Item 11, the average number of passengers carried per train mile on the system is three times the North Carolina average.

In my answer to the third question that was asked me, I gave the Railway's mileage both in and out of the State as of December 3, 1927. I have the data showing its mileage for the years 1928 and 1929.

That is shown in detail on an exhibit that will be introduced by a witness from the Accounting Department, same being "Vaughan—Exhibit A, Sheet 1 of 2 Sheets." The mileage in the State for both 1928 and 1929 was 131.01 miles and the total system mileage for 1928 was 2,241.46 miles, and for 1929 2,240.09 miles.

I will explain what is meant by "car hire" and the situation of the Railway with respect thereto.

When one of a railroad's loaded freight cars is consigned to a point beyond its own lines, it is not upon reaching the terminus of its own line unloaded and its cargo transferred to a car of the connecting carrier, but for the purpose of convenience and saving time it is carried straight through to destination and the connecting carrier or carriers pay its owner a rental of $1.00 per day for the privilege of using other equipment than their own. This is called "car hire." Whatever railroad at any time has custody of the car, whether loaded or empty, pays the

owner said rental, the amount of said rental having been determined by the American Railway Association, acting for the railroads as a whole, as fair compensation to owner for the expense of maintaining equipment, taxes and insurance thereon, and interest on the investment therein. The Norfolk & Western, for reasons hereafter explained, receives more car hire than it pays out, and hence has a car hire credit balance.

The Norfolk & Western is principally a coal carrying line, and a large part of its freight equipment is designed especially for the carriage of coal. On December 31, 1929, the total number of freight carrying cars owned was 46,806, of which 37,289 were coal cars. Its car hire balance is largely derived from coal cars, as ordinarily it has on its own line as many foreign owned cars of other classes (box cars, for example) as there are box cars, of example, of its own ownership on other lines. As heretofore, in 1929, for example, roughly 42/59s of the Railway's revenue paying freight was coal originated on its own lines, and as shown by Exhibit 2, over 70% went beyond the Railway's western termini, and hence the cars carrying this tonnage likewise went beyond the western termini. These cars, whether loaded or empty, brought the company $1.00 per day for each day that they were off line.

Hence, the Railway's revenues from car hire would logically be largest from the direction that its traffic was densest. Road mileage in a given state would have nothing to do with the matter, because if Columbus, Ohio, for example, was just one mile from the State line, the Railway would still be getting most of its car hire in Ohio, and yet if for taxing purposes Ohio was to receive only a mileage proportion of the car hire there earned, it would receive less than 1/2000s thereof, although 70% of the car hire might be earned there.

We have made a compilation of figures showing the source of receipts of car hire for the year 1929, which I herewith file as Conrad Exhibit 13. We could have made similar compilations for the years 19 and 1928, but as the direction of traffic was substantially the same for each of those years as in the year 1929, a compilation for 1929 is sufficiently typical to be illustrative of all four years. The totals of the figures might be changed, but the ratios would be substantially the same, and hence on account of the expense of making the compilation, we are using 1929 as an illustration.

In explanation of the exhibit, I will state that the Eastern District referred to on said exhibit, from which the greatest proportion of our car hire credits were received, embraces the railroads in the territory east of the Mississippi River and north of the Ohio and Potomac rivers, with the exception that the portions of the Pennsylvania, Baltimore and Ohio, and Western Maryland railroads that penetrate Virginia and into what is known as the Southern District are embraced in the Eastern District. The Southern District embraces the railroads in the territory east of the Mississippi River and south of the Ohio and Potomac rivers, with the exception of the Pennsylvania, Baltimore & Ohio and Western Maryland railroads. The Western District referred to embraces the railroads in the territory west of Chicago and the Mississippi River.

It will be noted that as between the Norfolk & Western and the roads in the Southern District, which embraces North Carolina, the car hire balance was against us and that also as between the Norfolk & Western and the roads touching North Carolina the car hire balance was against us; and further that roads touching North Carolina also traverse the States of Virginia, Tennessee, South Carolina, Georgia, Kentucky, etc. There is no

reason why the proportion attributable to North Carolina of car hire paid roads entering the State should be less than the proportion attributable to North Carolina of car hire received from roads entering the State; and the fact remains that we not only paid to roads entering North Carolina over $100,000.00 more car hire than we received from them, but also that in the Southern District we paid out over half a million dollars more car hire than we received—indicating thereby that as a matter of fact there is no car hire credit balance at all attributable to the State. The Railway's entire credit balance is due to the Eastern and Western districts, neither of which contain any road entering North Carolina. Columbus, Ohio, the western terminus of the road, lies in the Eastern District, and remembering that roughly 70% of the Railway's tonnage leaves its lines in Ohio, it will be noted that the $5,174,122.03 of car hire received in the Eastern District is roughly 70% (5/7s) of all the car hire received.

Under decisions of the Interstate Commerce Commission, it is no part of the duty of a railroad under existing laws to provide more freight cars for use in interstate commerce than its share of the cars required therefore, measured by the number needed for the transportation of freight on its own line. If, for example, a car of coal originating on the Norfolk & Western was destined to Chicago, the Norfolk & Western would be obligated to furnish a car only as far as Columbus. From that point the obligation to furnish the car is on the connecting carrier. Each carrier has the duty of providing equipment equivalent to that required for the movement on its own line of traffic carried by it, but no further than its own line. Hence it is our view that the equipment provision as made by an individual carrier must necessarily be distributed to the various portions of its line in relation to

the amount of traffic carried and the actual use of the equipment over each portion of the line.

For the purpose of insuring an adequate supply of cars for the large tonnage of bituminous coal produced on its lines and of design and capacity suited to the needs of its coal shippers and the operating methods of the railroad, and in view of the compensating per diem payment made to it by other railroads, the Norfolk & Western has provided for use in interstate commerce a considerably greater number of coal cars than they would be required to do under the law, measuring the requirement on the basis of the cars needed for transporting traffic on the N. & W. rails.

A number of other carriers, which like the N. & W. are preponderatingly originating carriers, are in the same situation.

It is our view that this excess of coal cars which we own, and which results in Car Hire credits to us, is properly attributable to the portions of the line over which the inter-carrier traffic moves while on the Norfolk & Western rails. Accordingly, in our account, the Car Hire credits received are apportioned to the various districts of the road in the same proportion that car mileage over the districts is to the total car mileage over the road as a whole.

It is also to be borne in mind that the per diem payments for Car Hire paid to us by other roads are in compensation for the expense of maintaining the equipment as well as taxes, insurance and interest on investment. Under American Railway Association Rules, the owner of a car is responsible for the cost of maintaining the car whether it is on its own line or on a foreign line. If repairs are made to a car on a line other than that of the owner, a bill is rendered against the owner for the cost thereof, unless repairs are made necessary by unfair

usage on the part of the handling carrier. When these bills from foreign lines for repairs to Norfolk & Western cars are paid, the amount is charged in our accounts to account covering "Freight Train Cars—Repairs" (I. C. C. No. 314) the same as though the repairs were made on the line of and by the Norfolk & Western. Our apportionment of the cost of freight car repairs is made to the several districts of the road in the proportion that the car mileage on the districts is of the total car mileage on the road as a whole. Hence when Car Hire credits are apportioned on the same basis, the district that has received a charge for repair cost is given the benefit of the Car Hire credits, which include compensation for repair cost incident to use of N. & W. cars by foreign lines.

Revenues from car hire constitute the great bulk of the Railway's revenue from hire of equipment. Hire of equipment generally would also include locomotives, passenger cars and work train equipment. Sometimes locomotives are loaned to other roads and passenger cars also go beyond the termini of their own lines, but the hire of equipment balance for other than freight cars is insignificant.

Q. Mr. Conrad, by an Accounting Department witness, we will introduce evidence concerning the Interstate Commerce Commission's Standard Classification of Expense Accounts for steam railroads. If you are familiar with this classification, can you state whether the principal part of the total expense involved in all of the accounts has been covered in your deposition thus far and whether this testimony is likewise applicable to accounts not specifically mentioned?

A. I am familiar with this classification. In my deposition thus far I have specifically mentioned most of the major expense accounts and which together comprise the greater part of the total of all of the operating expenses.

As I have stated, the expenses per unit of traffic in North Carolina are relatively heavy on account of the comparatively light traffic density, light engine load and light car load. Most of the expense accounts that I have not specifically mentioned are likewise influenced, although the influence is not the same on each of them.

I will state roughly what proportion of the total expense involved in all of the Primary Accounts constituting the General Account of "Transportation—Rail Line" has been previously covered and comment briefly on others in connection with my answer.

My testimony thus far has covered over half of the total expense embraced under the head of "Transportation"—roughly about 65% thereof. It would require a deposition of interminable length to cover all of the various minor items. The major items covered by my deposition are those of dispatching trains (Primary Account 372), train enginemen (392), fuel for train locomotives (394), water for train locomotives (397), lubricants and supplies for train locomotives (398 and 399), enginehouse expense (400), trainmen (401), telegraph and telephone operation (407) and train supplies and expenses (402). While I have not said anything specifically about water for train locomotives (397), train supplies and expense (402) or lubricants or other supplies for train locomotives (398 and 399), water is in the same category as fuel and the cost of lubricants, locomotive supplies and train supplies are greater per unit of traffic where the engine load and train load is light than where it is heavy, for the same reasons that engine maintenance is heavier. In such a matter as wages of station employes (Primary Account 373), the number employed is governed by the volume of business and the wages are standardized all over the system for employes of the same grades or classes—that is to say, that one billing clerk at Winston-Salem costs the same as one such

clerk at Columbus. As the number of such clerks is regulated by the amount of business to attend to, the cost of this item is the same per unit of traffic over the system. Station agents (also included in Account 373) are paid according to the class of station, and this cost is proportionately the same per unit of traffic over the system. On the other hand, the aggregate of yard expenses (Accounts 377 and 389) per unit of traffic decreases as the volume of business increases. This can be illustrated by the fact that where the volume of traffic is sufficient, as for example at Portsmouth, Ohio, many electrical and mechanical contrivances are installed that greatly diminish the expense per car or per ton handled and greatly lessen the number of engines and yard employes required to handle a given volume of traffic. At other terminals on the system where the volume of traffic justifies, hump yards have been constructed, by means of which cars are classified by gravity in a rapid manner and at much less expense for use of locomotives and crews than is the case at yards like Winston-Salem and Durham where the traffic is insufficient to warrant the expensive hump yard construction.

Q. What proportion of the total expense of the Primary Accounts embraced under the general account of "Maintenance of Equipment" has been covered by your deposition thus far?

A. Roughly 90%. The items of locomotive and freight car repairs, depreciation and retirement alone (Items 308-10, 214-16) comprise roughly 90% of the Maintenance of Equipment, and these expenses per unit of traffic are high in North Carolina for reasons heretofore stated, that is, where the trainload is light, more locomotives are required to move the same volume of traffic, and where the carload is light, a greater number of cars is required to haul the same tonnage, and hence

proportionately more locomotive and car repair, depreciation and retirement expense is incurred.

Q. What proportion of the general account of "Maintenance of Way and Structures" expense is covered by your deposition thus far.

A. Substantially all. As heretofore stated, expenses for Maintenance of Way and Structures do not increase proportionately with traffic volume — something more than 55% of same not varying with use—whereby the ratio between such expenses and earnings is diminished as the volume of traffic is increased. It should be perfectly obvious that this is true in the case of all structures.

Q. In the preceding portions of your testimony I notice that your exhibits in some instances embrace the years 1927, 1928 and 1929 and in some instances the year 1929 only. Are the figures shown upon each of the exhibits applicable to all three of the years 1927-1929 inclusive?

A. Wherever in response to any question I have not given the figures for all three of the years, my failure to do so is due to the fact that the 1929 figures embodied in any particular exhibit are sufficiently representative to be used for the years 1927 and 1928. The totals might be different, but the direction and relative volume of traffic on each district of the Norfolk and Western has remained sufficiently the same through the three years in question to be used as a basis of illustrating any omitted year, and on account of the expense and time involved, it has been unnecessary to compute the figures for each year in every instance. As long as coal continues to constitute such a preponderating bulk of the Railway's traffic, the figures for any given year are substantially typical of the surrounding years. In some instances I have given the figures for all three years instead of 1929, because I had the data for such years already available, but the figures for 1929 alone would have been sufficiently typical.

(Signed) K. V. CONRAD.

ICC Dockets Nos. _____
Defendants Exhibit No. 2.
Witness: Conrad.

NORFOLK AND WESTERN RAILWAY COMPANY

Statement Showing Tons of Coal Originated at Mines on Norfolk and Western Railway by Districts; Direction of Movement.

Districts and Years	Destined East		Destined West		
	No. Tons Originated	Percent of Total	No. Tons Originated	Percent of Total	Total Tons Originated
POCAHONTAS DISTRICT:					
Years 1927, 1928 and 1929	20,351,230	33.4	40,607,212	66.6	60,958,442
Year 1929	7,303,552	31.7	15,754,880	68.3	23,058,432
TUG RIVER DISTRICT:					
Years 1927, 1928 and 1929	5,638,098	29.3	13,616,046	70.7	19,254,144
Year 1929	1,995,363	29.7	4,717,713	70.3	6,713,076
THACKER DISTRICT:					
Years 1927, 1928 and 1929	2,193,711	9.6	20,639,678	90.4	22,833,389
Year 1929	806,746	9.8	7,406,455	90.2	8,213,201
TOTAL POCA OPERATING DISTRICT:					
Years 1927, 1928 and 1929	28,183,039	27.3	74,862,936	72.7	103,045,975
Year 1929	10,105,661	26.6	27,879,048	73.4	37,984,709

CLINCH VALLEY:					
Years 1927, 1928 and 1929	3,626,260	67.3	1,759,861	32.7	5,386,121
Year 1929	1,143,839	63.6	654,257	36.4	1,798,096
KENOVA DISTRICT:					
Years 1927, 1928 and 1929	1,024,007	16.3	5,261,258	83.7	6,285,265
Year 1929	440,160	22.8	1,486,954	77.2	1,927,114
TOTAL ALL DISTRICTS:					
Years 1927, 1928 and 1929	32,833,306	28.6	81,884,055	71.4	114,717,361
Year 1929	11,689,660	28.0	30,020,259	72.0	41,709,919

ICC Dockets Nos._____
Defendants Exhibit No. 3.
Witness: Conrad.

NORFOLK AND WESTERN RAILWAY COMPANY

Statement Showing Comparison of Total Revenue Tons-One-Mile and Revenue Coal Tons-One-Mile (Years 1927, 1928 and 1929) as Recorded for the Various States in which the Norfolk and Western Railway Operates—Also Ton-Miles per Mile of Road.

State	Miles of Road Operated	Total Revenue Ton Mile (In 1000)	Average Revenue Ton Mile Per Mile of Road (In 1000)	Total Revenue Coal Ton Miles (In 1000)	Percent of Coal Ton Mile of Total
	FOR CALENDAR YEAR 1927				
Virginia	1,270.26	5,205,843	4,098.2	3,600,584	69.16
North Carolina	131.05	122,149	932.1	61,190	50.09
Maryland	16.21	32,056	1,977.5	2,775	8.66
Total	1,417.52	5,360,048	3,781.3	3,664,549	68.37
West Virginia	524.94	5,221,345	9,946.6	4,688,074	89.78
Kentucky	22.27	31,973	1,435.7	31,058	97.14
Ohio	277.02	4,410,981	15,923.0	3,924,489	88.97
Total	824.23	9,664,299	11,725.2	8,643,621	89.44
Grand Total	2,241.75	15,024,347	6,702.1	12,308,170	81.92

For Calendar Year 1928					
Virginia	1,270.12	5,049,998	3,976.0	3,430,633	67.93
North Carolina	131.01	114,548	874.3	52,205	45.57
Maryland	16.21	32,038	1,976.4	3,132	9.78
Total	1,417.34	5,196,584	3,666.4	3,485,970	67.08
West Virginia	524.83	5,344,216	10,182.8	4,807,441	89.96
Kentucky	22.27	31,775	1,426.8	30,160	94.92
Ohio	277.02	4,443,110	16,039.0	3,972,090	89.40
Total	824.12	9,819,101	11,914.6	8,809,691	89.72
Grand Total	2,241.46	15,015,685	6,699.1	12,295,661	81.89
For Calendar Year 1929					
Virginia	1,269.89	5,654,216	4,452.5	4,009,661	70.91
North Carolina	131.01	114,912	877.1	52,631	45.80
Maryland	16.21	30,778	1,898.7	2,927	9.51
Total	1,417.11	5,799,906	4,092.8	4,065,219	70.09
West Virginia	523.60	5,965,372	11,393.0	5,387,301	90.31
Kentucky	22.27	37,788	1,696.8	36,880	97.60
Ohio	277.11	4,927,242	17,780.8	4,454,197	90.40
Total	822.98	10,930,402	13,281.5	9,878,378	90.38
Grand Total	2,240.09	16,730,308	7,468.6	13,943,597	83.34

ICC Docket No.------
Exhibit No. 4.
Witness: Conrad.

NORFOLK AND WESTERN RAILWAY COMPANY

Statement Showing Net Ton Miles (Compiled from Conductors' Wheel Reports) by Operating Districts, and Net Ton Miles per Mile of Road for the Calendar Year 1929.

Districts	Direction	Net Ton-Miles (Thousands)	Road Miles	Thousand Net Ton Miles Per Mile of Road
Norfolk	East	2,869,288		8,314
(Roanoke-Norfolk)	West	356,212		1,032
	Total	3,225,500	345.11	9,346
Durham	East	12,642		107
(Lynchburg-Durham)	West	62,255		527
	Total	74,897	118.18	634
Shenandoah	East	438,168		1,823
(Roanoke-Hagerstown)	West	175,330		730
	Total	613,498	240.32	2,553

Winston-Salem (Roanoke-Winston-Salem)	East	80,546		661	
	West	190,863		1,567	
	Total	271,409	121.81		2,228
Radford (Roanoke-Bluefield)	East	1,560,088		7,551	
	West	183,821		890	
	Total	1,743,909	206.59		8,441
Pulaski (Walton-Bristol)	East	126,856		451	
	West	89,430		318	
	Total	216,286	281.24		769
Pocahontas (Bluefield-Williamson)	East	961,070		3,127	
	West	2,324,711		7,563	
	Total	3,285,781	307.36		10,690
Clinch Valley (Bluefield-Norton)	East	309,655		2,068	
	West	45,615		305	
	Total	355,270	149.75		2,373

ICC Docket No._____
Exhibit No. 4.
Witness: Conrad.

NORFOLK AND WESTERN RAILWAY COMPANY

Statement Showing Net Ton Miles (Compiled from Conductors' Wheel Reports) by Operating Districts, and Net Ton Miles per Mile of Road for the Calendar Year 1929.

Districts	Direction	Net Ton-Miles (Thousands)	Road Miles	Thousand Net Ton Miles Per Mile of Road
Kenova	East	219,139		954
(Williamson-Portsmouth)	West	4,200,483		18,287
	Total	4,419,622	229.70	19,241
Columbus	East	117,995		1,150
(Portsmouth-Columbus)	West	3,029,528		29,534
	Total	3,147,523	102.58	30,684
Cincinnati	East	79,044		575
(Portsmouth-Cincinnati)	West	347,488		2,528
	Total	426,532	137.46	3,103

Grand Total	East	6,774,491		3,024	
	West	11,005,736		4,913	
	Total	17,780,227	2,240.10		7,937

NOTE: Above figures taken from Conductors' Wheel Reports, and include Mixed and Special Net Tons-One-Mile.

(East—East and North)
(West—West and South)

NORFOLK AND WESTERN

Statement Showing Net Ton Miles and Net Ton Miles Per Indicated First Thursday

District	Miles	Net Ton Miles East or North	Average Per Mile of Road
Iaeger to Bluefield	52	17,813,468	342,567
Bluefield to Roanoke	101	52,816,581	522,936
Roanoke to Norfolk	252	92,869,521	368,530
Total	405	163,499,570	403,703
Bluefield to Iaeger	52	17,813,468	342,567
Iaeger to Williamson	48	5,912,770	123,183
Williamson to Portsmouth	111	7,249,324	65,309
Portsmouth to Columbus	99	4,386,427	44,307
Total	310	35,361,989	114,071
Portsmouth to Clare	100	2,179,457	21,795
Norton to Bluefield	99	10,044,577	101,460
Walton to Bristol	111	3,675,081	33,109
Roanoke to Winston-Salem	121	2,707,711	22,378
Iaeger to Norfolk	405	163,499,570	403,703
Total	736	179,926,939	244,466
Lynchburg to Durham	117	348,604	2,979

ICC Docket No. 5.
Exhibit No. 5.
Witness: Conrad.

RAILWAY COMPANY

Mile of Road Eastbound, Westbound and Total on Districts Each Month—Year 1929.

Net Ton Miles			
West or South	Average Per Mile of Road	Total Net Ton Miles	Average Per Mile of Road
27,888,881	536,325	45,702,349	878,892
6,485,313	64,211	59,301,894	587,147
12,527,692	49,713	105,397,213	418,243
46,901,886	115,807	210,401,456	519,510
27,888,881	536,325	45,702,349	878,892
51,089,886	1,064,373	57,002,656	1,187,555
169,168,809	1,524,043	76,418,133	1,589,352
107,561,255	1,086,477	111,947,682	1,130,784
355,708,831	1,147,448	391,070,820	1,261,519
12,785,893	127,859	14,965,350	149,654
1,602,645	16,188	11,647,222	117,648
2,831,670	25,510	6,506,751	58,619
5,716,736	47,246	8,424,447	69,624
46,901,886	115,806	210,401,456	519,509
57,052,937	77,518	236,979,876	321,984
1,723,166	14,728	2,071,770	17,707

Conrad Exhibit No. 7.
Sheet No. 1 of 2 sheets.

NORFOLK AND WESTERN RAILWAY COMPANY

Statement Showing Comparison of Operating Expenses as Computed by Norfolk and Western Railway Company and as Determined by State Using Operating Ratio.

	Expense in N. C. as per Exhibit "B" on Mileage Prorate for Durham and Winston-Salem District and Actual Figures for Abingdon Branch	Expenses in North Carolina using System Operating Ratio	Increase or Decrease
YEAR 1927:			
Maintenance of Way and Structures	$ 347,524.63	$ 195,975.12 D—	$151,549.51
Maintenance of Equipment:			
Locomotive Repairs, Depr., and Retirements	248,427.58	123,730.05 D—	124,697.53
Freight Car Repairs, Depr. and Retirements	117,274.55	94,112.34 D—	23,162.21
Pass. Car Repairs, Depr. and Retirements	21,302.30	11,487.24 D—	9,815.06
All Other M. E. Expenses	31,201.94	35,845.73 I—	4,643.79
Total M. E. Expense	$ 418,206.37	$ 265,175.36 D—	$153,031.01

Traffic Expenses		20,031.22		16,746.46 D—	3,284.76
Transportation		698,755.49		361,640.53 D—	337,114.96
Miscellaneous Operations		284.14		3,460.01 I—	3,175.87
General		38,360.93		31,970.52 D—	6,390.41
Transportation for Investment—Cr.	R—	2,227.46	R—	5,536.02 D—	3,308.56
Total		$1,520,935.32		$ 869,431.98 D—	$651,503.34
YEAR 1928:					
Maintenance of Way and Structures		$ 327,356.59		$ 188,932.34 D—	$138,424.25
Maintenance of Equipment:					
Locomotive Repairs, Depr. and Retirements		265,812.41		120,645.12 D—	145,167.29
Freight Car Repairs, Depr. and Retirements		87,332.42		77,296.44 D—	10,035.98
Pass. Car Repairs, Depr. and Retirements		20,239.19		11,098.31 D—	9,140.88
All Other M. E. Expenses		34,628.06		34,339.46 D—	288.60
Total M. E. Expense		$ 408,012.08		$ 243,379.33 D—	$164,632.75

Conrad Exhibit No. 7.
Sheet No. 1 of 2 sheets.

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

	Expense in N. C. as per Exhibit "B" on Mileage Prorate for Durham and Winston-Salem District and Actual Figures for Abingdon Branch	Expenses in North Carolina using System Operating Ratio	Increase or Decrease
Traffic Expenses	21,306.73	16,582.18 D—	4,724.55
Transportation	654,208.66	324,853.95 D—	329,354.71
Miscellaneous Operations	201.89	3,003.07 I—	2,801.18
General	47,733.07	37,995.38 D—	9,737.69
Transportation for Investment—Cr.	R— 3,195.28	R— 2,611.37 I—	583.91
Total	$1,455,623.74	$ 812,134.88 D—	$643,488.86

YEAR 1929:				
Maintenance of Way and Structures	$ 359,598.40	$ 163,992.44	D—	$195,605.96
Maintenance of Equipment:				
Locomotive Repairs, Depr. and Retirements	266,348.63	114,703.67	D—	151,644.96
Freight Car Repairs, Depr. and Retirements	82/110.64	74,648.42	D—	7,462.22
Pass. Car Repairs, Depr. and Retirements	19,592.53	9,623.66	D—	9,968.87
All Other M. E. Expenses	36,640.70	31,471.99	D—	5,168.71
Total M. E. Expenses	$ 404,692.50	$ 230,447.74	D—	$174,244.76
Traffic Expenses	21,079.37	15,996.09	D—	5,083.28
Transportation	617,763.86	286,369.03	D—	331,394.83
Miscellaneous Operations	193.13	2,600.99	I—	2,407.86
General	44,310.07	32,252.28	D—	12,057.79
Transportation for Investment—Cr.	R— 2,932.77	R— 1,430.54	I—	1,502.23
Total	$1,444,704.56	$ 730,228.03	D—	$714,476.53

Office of Comptroller,
Roanoke, Virginia,
July 28, 1931—REP:EH

Conrad Exhibit No. 7.
Sheet No. 2 of 2 sheets.

NORFOLK AND WESTERN RAILWAY COMPANY

Statement showing computations used in arriving at figures used in column headed "Expenses in North Carolina using System Operating Ratio," appearing or sheet No. 1 of this Exhibit.

FOR YEAR 1927

		North Carolina Proportion of Operating Expenses
MAINTENANCE OF WAY AND STRUCTURES EXPENSES:		
North Carolina Gross Revenues	$ 1,384,005.08 x 14.16% =	$195,975.12
MAINTENANCE OF EQUIPMENT EXPENSES:		
Vaughan Exhibit "A", Sheet No. 2, only shows the "Total Ratio" for Maintenance of Equipment Expenses, therefore, it was necessary to make the following computations, based on Entire System figures, viz:		
Locomotive repairs, depreciation and retirements	$ 9,913,600.14 = 8.94%	

Freight-train car repairs, depreciation and retirements	7,546,765.14 =	6.80%	
Passenger-train car repairs, depreciation and retirements	924,669.88 =	0.83%	
All Other Maintenance of Equipment accounts	2,876,369.26 =	2.59%	
Total Maintenance of Equipment	$ 21,261,404.42 =	19.16%	
The above amounts divided by the Entire System Gross Revenues of	$110,948,200.64		

Equals the "Ratios" set opposite the several items, and applying same to the North Carolina Gross Revenues, we have the following results, viz:

Locomotive repairs, depreciation and retirements	$ 1,384,005.08 x	8.94% =	123,730.05	
Freight-train car repairs, depreciation and retirements	$ 1,384,005.08 x	6.80% =	94,112.34	
Passenger-train car repairs, depreciation and retirements	$ 1,384,005.08 x	0.83% =	11,487.24	
All other Maintenance of Equipment accounts	$ 1,384,005.08 x	2.59% =	35,845.73	
Total Maintenance of Equipment	$ 1,384,005.08 x	19.16% =		265,175.36

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

FOR YEAR 1927

		North Carolina Proportion of Operating Expenses
TRAFFIC EXPENSES: North Carolina Gross Revenues	$ 1,384,005.08 x 1.21% =	16,746.46
TRANSPORTATION EXPENSES: North Carolina Gross Revenues	$ 1,384,005.08 x 26.13% =	361,640.53
MISCELLANEOUS OPERATIONS: North Carolina Gross Revenues	$ 1,384,005.08 x 0.25% =	3,460.01
GENERAL EXPENSES: North Carolina Gross Revenues	$ 1,384,005.08 x 2.31% =	31,970.52
TRANSPORTATION FOR INVESTMENT—CR.: North Carolina Gross Revenues	$ 1,384,005.08 x 0.40% =	5,536.02
TOTAL OPERATING EXPENSES AS AUDITED BY STATE AUTHORITIES: North Carolina Gross Revenues	$ 1,384,005.08 x 62.82% =	$869,431.98

				For Year 1928
Maintenance of Way and Structures Expenses:				
North Carolina Gross Revenues	$ 1,305,683.08	x 14.47%	=	$188,932.34
Maintenance of Equipment Expenses:				
Vaughan Exhibit "A", Sheet No. 2, only shows the "Total Ratio" for Maintenance of Equipment Expenses, therefore, it was necessary to make the following computations, based on Entire System figures, viz:				
Locomotive repairs, depreciation and retirements	$ 9,882,797.16	=	9.24%	
Freight-train car repairs, depreciation and retirements	6,324,628.38	=	5.92%	
Passenger-train car repairs, depreciation and retirements	911,415.13	=	0.85%	
All Other Maintenance of Equipment accounts	2,814,710.98	=	2.63%	
Total Maintenance of Equipment	$ 19,933,551.65	=	18.64%	
The above amounts divided by the Entire System Gross Revenues of	$106,947,111.38			

FOR YEAR 1928

					North Carolina Proportion of Operating Expenses
Equals the "Ratios" set opposite the several items, and applying same to the North Carolina Gross Revenues, we have the following results, viz:					
Locomotive repairs, depreciation and retirements	$ 1,305,683.08	x 9.24%	=	120,645.12	
Freight-train car repairs, depreciation and retirements	$ 1,305,683.08	x 5.92%	=	77,296.44	
Passenger-train car repairs, depreciation and retirements	$ 1,305,683.08	x 0.85%	=	11,098.31	
All other Maintenance of Equipment accounts	$ 1,305,683.08	x 2.63%	=	34,339.46	
Total Maintenance of Equipment	$ 1,305,683.08	x 18.64%	=		243,379.33
TRAFFIC EXPENSES: North Carolina Gross Revenues	$ 1,305,683.08	x 1.27%	=		16,582.18

TRANSPORTATION EXPENSES:			
North Carolina Gross Revenues	$ 1,305,683.08 x	24.88% =	324,853.95
MISCELLANEOUS OPERATIONS:			
North Carolina Gross Revenues	$ 1,305,683.08 x	0.23% =	3,003.07
GENERAL EXPENSES:			
North Carolina Gross Revenues	$ 1,305,683.08 x	2.91% =	37,995.38
TRANSPORTATION FOR INVESTMENT—CR.:			
North Carolina Gross Revenues	$ 1,305,683.08 x	0.20% =	2,611.37
TOTAL OPERATING EXPENSES AS AUDITED BY STATE AUTHORITIES:			
North Carolina Gross Revenues	$ 1,305,683.08 x	62.20% =	$812,134.88

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

FOR YEAR 1929.

			North Carolina Proportion of Operating Expenses
MAINTENANCE OF WAY AND STRUCTURES EXPENSES:			
North Carolina Gross Revenues	$ 1,300,495.16 x 12.61% =		$163,992.44
MAINTENANCE OF EQUIPMENT EXPENSES:			
Vaughan Exhibit "A", Sheet No. 2, only shows the "Total Ratio" for Maintenance of Equipment Expenses, therefore, it was necessary to make the following computations, based on Entire System figures, viz:			
Locomotive repairs, depreciation and retirements	$ 10,376,261.53	= 8.82%	
Freight-train car repairs, depreciation and retirements	6,746,914.37	= 5.74%	
Passenger-train car repairs, depreciation and retirements	877,902.94	= 0.74%	

All Other Maintenance of Equipment accounts		2,847,533.27 = 2.42%			
Total Maintenance of Equipment		$ 20,848,612.11 = 17.72%			
The above amounts divided by the Entire System Gross Revenues of		$117,631,751.60			
Equals the "Ratios" set opposite the several items, and applying same to the North Carolina Gross Revenues, we have the following results, viz:					
Locomotive repairs, depreciation and retirements	$	1,300,495.16 x 8.82% =		114,703.67	
Freight-train car repairs, depreciation and retirements	$	1,300,495.16 x 5.74% =		74,648.42	
Passenger-train car repairs, depreciation and retirements	$	1,300,495.16 x 0.74% =		9,623.66	
All other Maintenance of Equipment accounts	$	1,300,495.16 x 2.42% =		31,471.99	
Total Maintenance of Equipment	$	1,300,495.16 x 17.72% =			230,447.74
TRAFFIC EXPENSES:					
North Carolina Gross Revenues	$	1,300,495.16 x 1.23% =			15,996.09
TRANSPORTATION EXPENSES:					
North Carolina Gross Revenues	$	1,300,495.16 x 22.02% =			286,369.03

	For Year 1929	
		North Carolina Proportion of Operating Expenses
Miscellaneous Operations: North Carolina Gross Revenues	$ 1,300,495.16 x 0.20% =	2,600.99
General Expenses: North Carolina Gross Revenues	$ 1,300,495.16 x 2.48% =	32,252.28
Transportation for Investment—Cr.: North Carolina Gross Revenues	$ 1,300,495.16 x 0.11% =	1,430.54
Total Operating Expenses as Audited by State Authorities: North Carolina Gross Revenues	$ 1,300,495.16 x 56.15% =	$730,228.03

NOTE: Vaughan Exhibit No. "A" includes the basic figures used in computing the Ratio of Operating Expenses to Gross Revenues, also the "Ratios."

Office of Comptroller,
Roanoke, Virginia,
August 6, 1931.
v/a

ICC Docket No.------
Exhibit No. 9
Witness: Conrad.

NORFOLK AND WESTERN RAILWAY COMPANY

Statement of Freight Locomotive Miles, Freight Train Miles, Gross Ton Miles (Thousands), Average Gross Ton Miles Per Train Mile, with Comparison of Locomotive Ton Miles Per Train Mile and Fuel Consumption Per 1,000 Gross Ton Miles by Operating Districts, for the Year 1929.

Districts	Freight Locomotive Miles	Freight Train Miles	Gross Ton Miles (Thousands)	Average Gross Ton Miles Per Train Mile
Norfolk (Roanoke-Norfolk)	2,012,660	1,892,913	6,052,761	3,197.6
Radford (Roanoke-Bluefield)	1,215,374	1,014,986	3,349,005	3,299.6
Pocahontas (Bluefield-Williamson)	2,083,219	1,696,683	5,611,800	3,307.5
Clinch Valley (Bluefield-Norton)	553,038	429,835	682,745	1,588.4
Durham (Lynchburg-Durham)	213,587	191,456	169,369	884.6
Shenandoah (Roanoke-Hagerstown)	1,349,104	944,693	1,595,926	1,689.4
Winston-Salem (Roanoke-Winston Salem)	775,250	445,328	661,307	1,485.0
Pulaski (Walton-Bristol)	496,008	442,551	504,257	1,139.4
Kenova (Williamson-Portsmouth)	1,697,469	1,653,410	7,900,742	4,778.5
Columbus (Portsmouth-Columbus)	1,278,629	1,229,680	5,721,499	4,652.8
Cincinnati (Portsmouth-Cincinnati)	675,320	439,042	878,591	2,001.2
Grand Total	12,349,658	10,380,577	33,127,982	3,191.3

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

Districts	Freight Locomotive Ton Miles	Average Freight Locomotive Ton Miles Per Freight Train Mile	Average Pounds of Coal Consumed in Freight Service Per 1,000 Gross Ton Miles
Norfolk (Roanoke-Norfolk)	418,230,989	220.9	99.2
Radford (Roanoke-Bluefield)	293,287,896	289.0	129.2
Pocahontas (Bluefield-Williamson)	498,382,084	293.7	167.3
Clinch Valley (Bluefield-Norton)	108,815,039	253.2	258.1
Durham (Lynchburg-Durham)	34,340,944	179.4	312.7
Shenandoah (Roanoke-Hagerstown)	234,839,774	248.6	222.1
Winston-Salem (Roanoke-Winston-Salem)	130,633,801	293.3	307.1
Pulaski (Walton-Bristol)	85,883,131	194.1	298.8
Kenova (Williamson-Portsmouth)	400,446,161	242.2	102.4
Columbus (Portsmouth-Columbus)	307,711,205	250.2	99.5
Cincinnati (Portsmouth-Cincinnati)	128,197,260	292.0	213.5
Grand Total	2,640,768,284	254.4	135.1

Conrad
Exhibit 10.

NORFOLK AND WESTERN RAILWAY COMPANY

Comparison of Freight Train Miles, Gross Ton Miles, Net Ton Miles, Cost of Fuel for Freight Locomotives, Wages of Freight Enginemen and Freight Trainmen, also average Gross Ton Miles, Net Ton Miles, Cost of Fuel, Wages of Enginemen and Trainmen per Train Mile, 1000 Gross Ton Miles and 1000 Net Ton Miles.

	Durham District		
	1927	1928	1929
Freight Train Miles	207,286	197,238	191,456
Gross Ton Miles (Thousands)	181,326	179,477	169,369
Net Ton Miles (Thousands)	78,085	77,678	74,897
Cost of Fuel for Freight Locomotives	$ 61,034.24	$ 52,136.48	$ 44,771.77
Wages of Freight Enginemen	61,311.57	44,946.14	42,093.73
Wages of Freight Trainmen	52,658.23	49,728.23	46,356.21
Average Gross Ton Miles per Train Mile	874.8	910.0	884.6
Average Net Ton Miles per Train Mile	376.7	393.8	391.2
Average Cost of Fuel Per:			
Train Mile	$ 0.294	$ 0.264	$ 0.234
1,000 Gross Ton Miles	0.337	0.290	0.264
1,000 Net Ton Miles	0.782	0.671	0.598

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

	1927	1928	1929
Average Wage Cost of Enginemen Per:			
Train Mile	$ 0.296	$ 0.228	$ 0.220
1,000 Gross Ton Miles	0.338	0.250	0.249
1,000 Net Ton Miles	0.785	0.579	0.562
Average Wage Cost of Trainmen Per:			
Train Mile	$ 0.254	$ 0.252	$ 0.242
1,000 Gross Ton Miles	0.290	0.277	0.274
1,000 Net Ton Miles	0.674	0.640	0.619
	WINSTON DISTRICT		
Freight Train Miles	476,278	455,435	445,328
Gross Ton Miles (Thousands)	688,979	673,624	661,307
Net Ton Miles (Thousands)	300,170	284,411	271,409
Cost of Fuel for Freight Locomotives	$ 205,327.76	$ 183,162.25	$ 168,160.56
Wages of Freight Enginemen	160,303.99	149,542.10	142,735.52
Wages of Freight Trainmen	129,532.00	120,477.59	115,788.87
Average Gross Ton Miles per Train Mile	1,446.6	1,479.1	1,485.0
Average Net Ton Miles per Train Mile	630.2	624.5	609.5

Average Cost of Fuel Per:			
Train Mile	$ 0.431	$ 0.402	$ 0.378
1,000 Gross Ton Miles	0.298	0.272	0.254
1,000 Net Ton Miles	0.684	0.644	0.620
Average Wage Cost of Enginemen Per:			
Train Mile	$ 0.337	$ 0.328	$ 0.321
1,000 Gross Ton Miles	0.233	0.222	0.216
1,000 Net Ton Miles	0.534	0.526	0.526
Average Wage Cost of Trainmen Per:			
Train Mile	$ 0.272	$ 0.265	$ 0.260
1,000 Gross Ton Niles	0.188	0.179	0.175
1,000 Net Ton Miles	0.432	0.424	0.427

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

	System		
	1927	1928	1929
Freight Train Miles	10,215,437	9,863,227	10,380,577
Gross Ton Miles (Thousands)	29,745,276	30,048,502	33,127,982
Net Ton Miles (Thousands)	15,951,708	15,980,354	17,780,227
Cost of Fuel for Freight Locomotives	$3,804,856.40	$3,451,075.28	$3,491,229.91
Wages of Freight Enginemen	2,685,674.24	2,453,372.83	2,534,677.82
Wages of Freight Trainmen	2,615,519.29	2,409,563.86	2,537,814.97
Average Gross Ton Miles per Train Mile	2,911.8	3,046.5	3,191.3
Average Net Ton Miles per Train Mile	1,561.5	1,620.2	1,712.8
Average Cost of Fuel Per:			
Train Mile	$ 0.372	$ 0.350	$ 0.336
1,000 Gross Ton Miles	0.128	0.115	0.105
1,000 Net Ton Miles	0.239	0.216	0.196

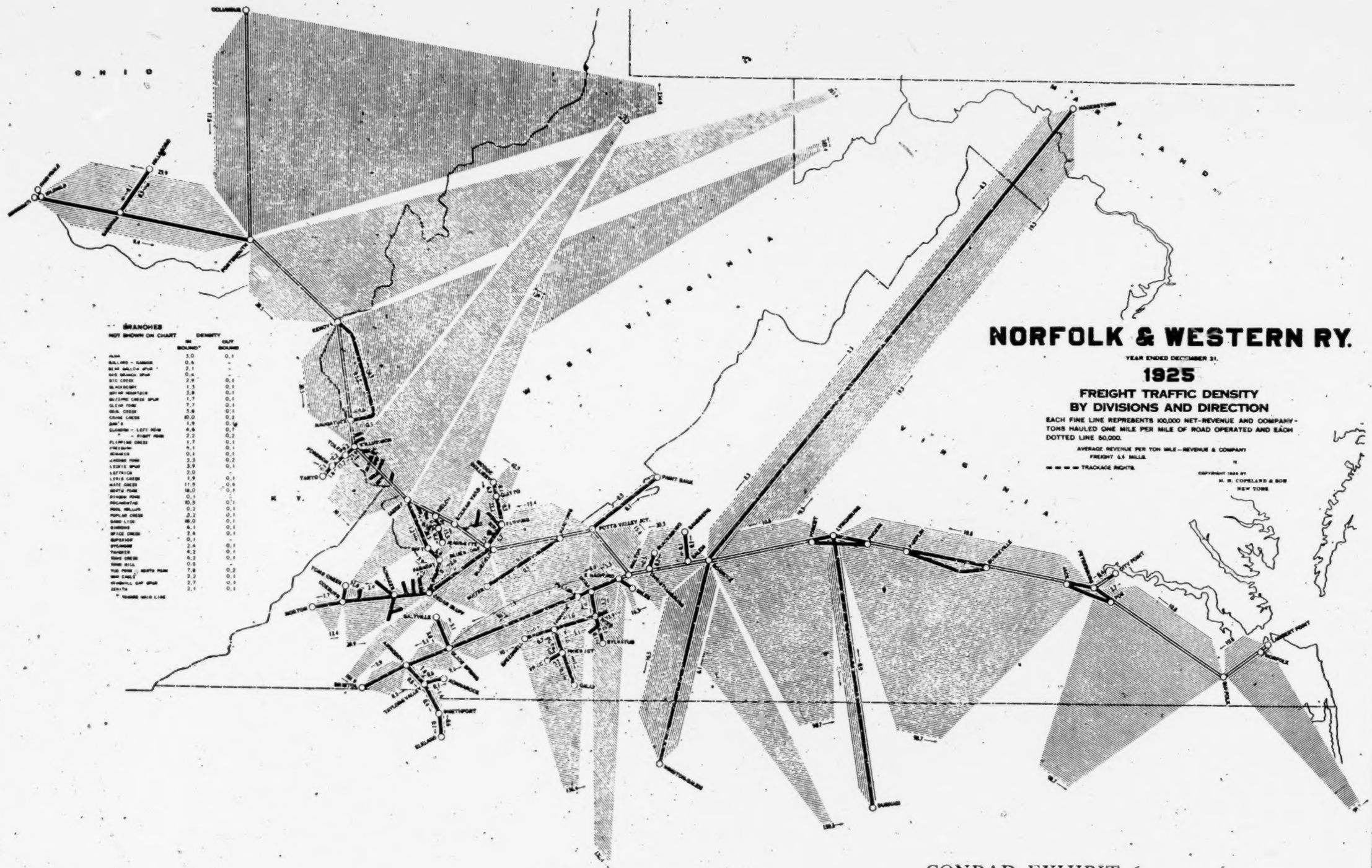
Average Wage Cost of Enginemen Per:			
Train Mile	$ 0.263	$ 0.249	$ 0.244
1,000 Gross Ton Miles	0.089	0.082	0.077
1,000 Net Ton Miles	0.168	0.154	0.143
Average Wage Cost of Trainmen Per:			
Train Mile	$ 0.256	$ 0.244	$ 0.244
1,000 Gross Ton Niles	0.088	0.080	0.077
1,000 Net Ton Miles	0.164	0.151	0.143

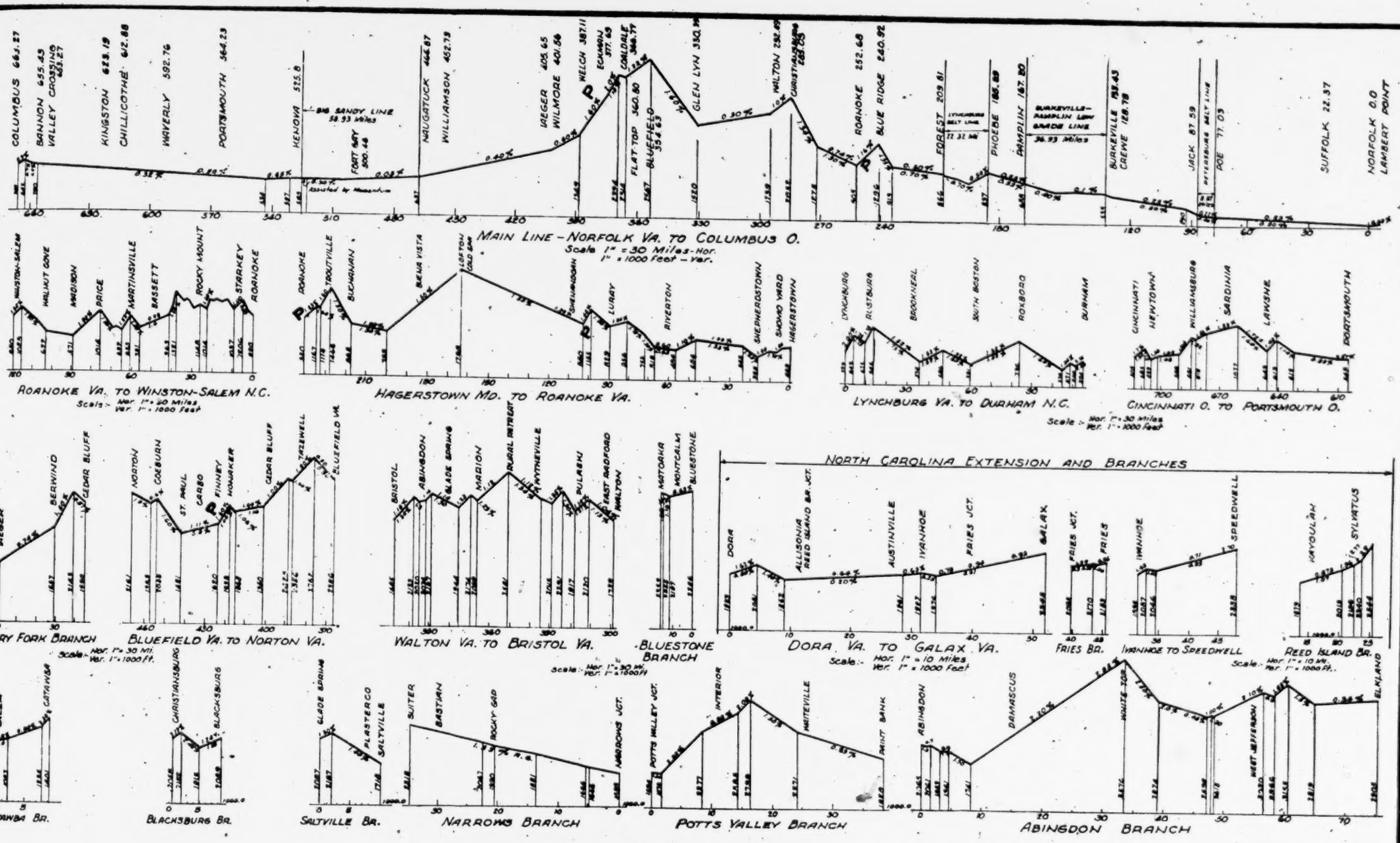
Exhibit No. 11.
Witness: Conrad.

NORFOLK AND WESTERN RAILWAY COMPANY

Statement Showing Comparison of Traffic Transported in North Carolina and Traffic Over Entire System—Year 1929.

	Cars	Tons	Tons One Mile	N. & W. Revenue	Average Revenue Per Ton Mile	Average Tons Per Car
NORTH CAROLINA:						
Coal	22,892	1,203,134	52,630,604	$ 263,161	.0050	52.6
Other	67,091	1,516,680	62,281,434	843,225	.0135	22.6
Total	89,983	2,719,814	114,912,038	$ 1,106,386	.0096	30.2
SYSTEM TOTAL:						
Coal	788,941	47,909,881	13,943,597,206	$ 72,932,302	.0052	60.7
Other	427,820	11,802,914	2,786,711,165	35,419,196	.0127	27.6
Total	1,216,761	59,712,795	16,730,308,371	$108,351,498	.0065	49.1


OHIO
KY.
PENNSYLVANIA
MARIETTA
PARKERSBURG
KENOVA
WILLIAMSON
WELCH
PINEVILLE
BLUEFIELD
TAZEWELL
CRUMPLER
ELKHORN
NORTON
PRESTON
PRINCE
SHAWNEE
CRADDOCKVILLE
POCAHONTAS
PRICE JCT.
SYLVATUS
POTTS VALLEY JCT.
PRINCE
ELKHORN
CRUMPLER
NORTON
PRESTON



NORFOLK & WESTERN RY. CO.

RULING GRADE PROFILES
SCALE :- AS NOTED

Grades above line are against traffic going towards the right.
" below " " " " " " left.
P indicates Pusher Grades.

Office of Chief Engineer, Roanoke, Va.
Dec. 6th, 1930.

M-1379-A

M-1379-A From M-371-A and M-1379

C.E. File #58583

CONRAD EXHIBIT 8

Conrad
Exhibit 12.

NORFOLK AND WESTERN RAILWAY COMPANY

Statement of Passengers Carried, Passenger-One-Mile, Revenues and Expenses, Together with Averages Showing Comparison as Between North Carolina and Entire System.

		1927	
		North Carolina	System
1	Passengers Carried	119,608	3,603,429
2	Passengers-One-Mile	3,204,864	202,062,992
3	Passenger Train Miles	235,938	4,966,211
4	Passenger Car Miles	738,335	19,116,260
5	Passenger Revenue Account 102	$ 107,388.39	$ 6,893,707.60
6	Passenger, Mail and Express—Accounts 102, 106 and 107	184,687.52	9,113,820.60
7	Passenger Expenses	380,298.25	10,657,131.04
	AVERAGES:		
8	Passenger Revenue Per Train Mile	.4552	1.3881
9	Passenger Mail and Express Revenue Per Train Mile	.7828	1.8352
10	Passenger Expense Per Train Mile	1.6119	2.1459
11	Passengers Per Train Mile	13.6	40.7

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

				Conrad Exhibit 12.
12	Passenger Revenue Per Passenger Car-Mile		.1454	.3606
13	Passenger Expense Per Passenger Car-Mile		.5151	.5575
14	394 Fuel for Passenger Locomotives	$	27,361.10	$ 620,567.04
15	392 Train Enginemen—Passenger		32,267.05	701,690.93
16	401 Trainmen—Passenger		26,952.27	689,768.16
	AVERAGES:			
17	Passenger Fuel Cost per Passenger Train Mile		.1160	.1250
18	Passenger Enginemen per Passenger Train Mile		.1368	.1413
19	Passenger Trainmen per Passenger Train Mile		.1142	.1389
20	Passenger Fuel Cost per Passenger Car Mile		.0371	.0325
21	Passenger Enginemen per Passenger Car Mile		.0437	.0367
22	Passenger Trainmen per Passenger Car Mile		.0365	.0361

		1928	
		North Carolina	System
1	Passengers Carried	90,188	2,882,888
2	Passengers-One-Mile	2,449,999	168,626,906
3	Passenger Train Miles	236,023	4,699,196
4	Passenger Car Miles	708,193	17,751,728
5	Passenger Revenue Account 102	$ 82,677.41	$ 5,726,833.34
6	Passenger, Mail and Express—Accounts 102, 106 and 107	160,406.75	7,960,742.29
7	Passenger Expenses	391,467.18	10,234,724.86
	AVERAGES:		
8	Passenger Revenue Per Train Mile	.3503	1.2187
9	Passenger Mail and Express Revenue Per Train Mile	.6796	1.6941
10	Passenger Expense Per Train Mile	1.6586	2.1780
11	Passengers Per Train Mile	10.4	35.9
12	Passenger Revenue Per Passenger Car-Mile	.1168	.3226

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

			Conrad Exhibit 12.
13	Passenger Expense Per Passenger Car-Mile	.5528	.5765
14	394 Fuel for Passenger Locomotives	$ 23,733.30	$ 527,283.54
15	392 Train Enginemen—Passenger	32,885.43	664,191.36
16	401 Trainmen—Passenger	26,794.51	658,009.45
	AVERAGES:		
17	Passenger Fuel Cost per Passenger Train Mile	.1006	.1122
18	Passenger Enginemen per Passenger Train Mile	.1393	.1414
19	Passenger Trainmen per Passenger Train Mile	.1135	.1400
20	Passenger Fuel Cost per Passenger Car Mile	.0335	.0297
21	Passenger Enginemen per Passenger Car Mile	.0464	.0374
22	Passenger Trainmen per Passenger Car Mile	.0378	.0371

		1929	
		North Carolina	System
1	Passengers Carried	68,617	2,442,141
2	Passengers-One-Mile	1,880,359	151,545,519
3	Passenger Train Miles	235,080	4,616,190
4	Passenger Car Miles	710,098	17,175,366
5	Passenger Revenue Account 102	$ 62,136.90	$ 5,110,927.78
6	Passenger, Mail and Express—Accounts 102, 106 and 107	158,190.94	7,965,570.80
7	Passenger Expenses	376,313.87	9,641,945.56
	AVERAGES:		
8	Passenger Revenue Per Train Mile	.2643	1.1072
9	Passenger Mail and Express Revenue Per Train Mile	.6729	1.7256
10	Passenger Expense Per Train Mile	1.6008	2.0887
11	Passengers Per Train Mile	8.0	32.8

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

1929

		North Carolina	System
12	Passenger Revenue Per Passenger Car-Mile	.0875	.2976
13	Passenger Expense Per Passenger Car-Mile	.5299	.5614
14	394 Fuel for Passenger Locomotives	$ 22,703.80	$ 495,214.71
15	392 Train Enginemen—Passenger	31,866.48	658,217.47
16	401 Trainmen—Passenger	25,276.75	642,911.47
	AVERAGES:		
17	Passenger Fuel Cost per Passenger Train Mile	.0966	.1073
18	Passenger Enginemen per Passenger Train Mile	.1356	.1426
19	Passenger Trainmen per Passenger Train Mile	.1075	.1393
20	Passenger Fuel Cost per Passenger Car Mile	.0320	.0288
21	Passenger Enginemen per Passenger Car Mile	.0449	.0383
22	Passenger Trainmen per Passenger Car Mile	.0356	.0374

Office of Comptroller,
Roanoke, Virginia,
August 1, 1931—rep/rf.

Conrad
Exhibit 13.

Showing Sources and Amounts of Car Hire—Year 1929.

Roads In	Car Hire Received by N. & W.	Car Hire Paid by N. & W. to Foreign Lines
Eastern District	$ 5,174,122.03	$ 1,771,677.08
Southern District	1,080,907.59	1,604,021.26
Western District	678,412.64	248,922.02
Total	$ 6,933,442.26	$ 3,624,620.36
Roads touching North Carolina	$ 618,051.30	$ 720,970.95

CONRAD EXHIBIT No. 1

This is a map of the Railway and its connections, and copies have been filed with the Clerk.

CROSS-EXAMINATION of Mr. K. V. Conrad, by the State.

Examination by Mr. Seawell:

Q. Your principal examination dealt with operating costs?

A. To some extent.

Q. You are competent to testify as to operating costs?

A. I can reply to that question that I have dealt with operating costs.

Q. You did deal with the testimony of Mr. Vaughan with reference to some of the tables that he has produced here?

A. Yes.

Q. You can definitely establish the cost of your terminal facilities at Winston-Salem and Durham?

A. Yes, sir.

Q. In a general way, how would these costs be apportioned? You have a lot of bill clerks, station agents, etc.?

A. Yes, sir.

Q. You have also train operators out of Winston-Salem, train crews?

A. We have train crews operating out of Winston-Salem.

Q. They would be a part of the cost which you have assigned to North Carolina—the wage cost of the crews?

A. Yes, sir.

Q. That would have to be prorated, wouldn't it?

A. It has been divided between Virginia and North Carolina.

Q. North Carolina is only prorated?

A. Yes, sir.

Q. Have you an idea what your cost is in maintaining your facilities, say, in Winston-Salem?

A. Mr. Vaughan's Exhibit H shows expenses actually incurred at Winston-Salem and Durham districts to be $307,232.20.

Q. Can you tell me how much revenue that earned the Railroad Company?

A. No, sir.

Q. Why?

A. We cannot tell how much revenue any expenditure would earn. It is impossible to allocate any particular item of expense to revenue.

Q. That would be impossible in any ease—under any circumstances?

A. I should think so.

Q. I believe the formula required by the statute is a mileage prorate of the revenue. Let us assume that Winston-Salem and Durham is moving up to within one-half mile of the Virginia line. That would very materially reduce the revenue received in North Carolina?

A. Yes, sir.

Q. Practically destroy it, wouldn't it?

A. It would reduce it.

Q. The influence of that expenditure in earning revenue for the system would be correspondingly reduced?

A. I don't understand that.

Q. The influence of the $307,232.20 expenditure in maintaining facilities in these points, in earning revenue, would not be reduced?

A. I don't know.

Q. What difference would that make?

A. The location wouldn't make any difference in the expenditure.

Q. Wouldn't it make any difference in producing revenue?

A. It might.

Q. What kind of business is the Railway conducting?

A. Common carrier and freight.

Q. No other business? No other sort of business?

A. No, sir.

Q. The point I am trying to prove is that you are doing just one kind of business, one sort of business?

A. Yes, sir.

Q. These haulings begin and end in a series of transactions in North Carolina and end in North Carolina, and sometimes end in some other State?

A. Yes, sir.

Q. Therefore you are not able to tell actually what the dealer would make in North Carolina?

A. No, sir, I don't think so. We have shown that by far the greater part of this expense can be assigned to North Carolina.

Q. I am talking about the revenue producing power in North Carolina?

A. It is impossible to tell what influence that has in producing revenue.

Q. What is the significance, fairness or justice in trying to find the net revenue of North Carolina by at-

tempting to take the cost from the revenue mileage prorate?

A. It seems to me that is substantially what we did when we abandoned a line to the Interstate Commerce Commission.

Q. You haven't made any application to abandon the Durham and Winston-Salem lines, have you?

A. No.

EXAMINATION of MR. CONRAD, by the Referee:

Q. Are all of the terminal costs of the Winston-Salem and Durham districts, which you say amount to some $307,232.20—are all of these charged against the operating costs of those two divisions?

A. No, sir, out of that $307,232.20, $116,748.27 is only charged to North Carolina. No part of the terminal expenses at Lynchburg has been charged to North Carolina.

Q. How does he arrive at that?

A. He used the mileage prorate.

Q. You charged against the North Carolina business the mileage prorate part of all the expenses?

A. Yes, sir, and no part of the expenses of Lynchburg.

RE-DIRECT EXAMINATION of MR. CONRAD, by Mr. Rivinus.

I will examine and explain the purport of that Vaughan Exhibit I. Mr. Vaughan's Exhibit I is a statement of freight expense per care mile, overhead expenses assigned as a total to the Winston-Salem and Durham districts of $160,117.60 for the year 1927, and shows that this expense averaged per freight car mile 7.06/1000 miles, while for the balance of the system overhead expenses per

freight car mile were higher, as they averaged $0.01072 for the mile. The same relative showing appears for the other years. It seems to me that this shows that the allocation to these districts is certainly not more than the prorate part of the expenses that are properly chargeable to those districts. Terminals are ordinarily equal distances apart on our railroad. I feel that we have arrived at the actual terminal costs that should be properly chargeable to those districts.

PLAINTIFF'S EVIDENCE.

(1) JOHN W. ROBERTS, a witness of lawful age, being first duly sworn, testifies as follows:

I reside at 2652 Lakeview Avenue, Chicago, Illinois. By profession I am an accountant and statistical analyst. I am associated with the Roberts-Pettijohn-Wood Corporation, a firm of accountants and industrial engineers, and have been for the past twelve years.

I will state in some detail my business experience as an accountant and statistical analyst so that a conception may be gained of my professional qualifications.

Thirty-three years ago I began work as a stenographer in the courts of Sumner County, Kansas, and served in that capacity for about one year. I then entered the service of the Atchison, Topeka & Santa Fe Railway Company as a stenographer and clerk in the division offices of that road at Wellington, Kansas. During the ensuing eight years I worked on that division in the successive capacities of clerk and stenographer to the Division Foreman of Bridges and Building and Water service; to the Roadmaster; and to the Division Engineer. I was promoted to the Superintendent's office and served as stenographer to the chief clerk; as private secretary to the division superintendent; as timekeeper, and head

timekeeper; as division accountant and relief chief clerk. In 1906, I was sent to Colorado to serve the general superintendent as his private secretary. In the summer of that year I left the Santa Fe to accept a better position in the office of the General Manager of the Rock Island Lines at Topeka, Kansas, but after a few months in that (2) position I was offered and accepted the job of chief clerk to the superintendent on the division of the Santa Fe on which I had worked formerly. I returned to the Santa Fe in September, 1906. A few months later I was appointed chief clerk to the general manager of that road, with headquarters at Topeka, Kansas. In the summer of 1907, my eyes required that I give up office work for a time. For a few months I served as secretary to the general manager, spending much of the time on the road. When again able to do office work I was sent to Newton, Kansas, on August 1, 1907, to serve as maintenance and construction clerk in the general superintendent's office there. The so-called Panhandle lines of the Santa Fe were being reconstructed and made into a through freight line. My experience on, and familiarity with, that section of the railroad recommended me for the position which was a responsible and difficult one. When the reconstruction work was practically completed I was sent to Amarillo, Texas, in April, 1909. The Santa Fe's West Texas lines were being placed under resident management. Many new lines were being built, or were about to be undertaken. I was placed in charge of maintenance and construction matters in the general manager's office, and after a few months was made chief clerk to the general manager. In January, 1911, I left the Santa Fe and went into business for myself, and was out of railway service until the fall of 1911. Having disposed of my business interests, I returned to the Santa Fe as head of the construction accounts department in the office of

the Auditor of Disbursements at Topeka. In a few months I was made assistant chief clerk in that office, and remained there until October, 1914, when I was appointed a Grade 1 examiner of accounts of the Bureau of Valuation of the Interstate Commerce Commission, with headquarters at Kansas City, Missouri. I served the Interstate Commerce Commission until May 1, 1918. During the first two years of that service I had charge of field parties examining the accounts of sundry railroads in connection with Federal Valuation work. In 1916, I was made district accountant of the Western District and (3) had charge of valuation accounting on about 60,000 miles of railroad, with a staff of 35 to 40 accountants. Among many others, I had immediate charge of the examination of the Kansas City Southern Railway System, and personally wrote the accounting report on that road and participated in the valuation hearings. This was the first large railroad subjected to Federal valuation.

On April 8, 1918, I was loaned to the U. S. Railroad Administration by the Interstate Commerce Commission. On May 1, 1918, the commission accepted my resignation, and I was appointed Auditor of the Railroad Administration with headquarters at Washington, D. C. I was the first incumbent of that position and consequently had to organize the work, recruit and train a large force, and assume responsibility for the books and accounts of the administration. I remained in that position throughout the war and until May 1, 1920. During this time, in addition to the duties which ordinarily attach to such an office, I had charge also of the cost accounting in connection with the purchase of some four hundred million dollars worth of cars and locomotives which were bought by the Director-General under cost-plus contracts. I recruited, trained, and supervised the work of a corps of about 250 cost accountants and cost clerks who were en-

gaged in the plants and offices of practically every railway car and locomotive builder in the United States.

On May 1, 1920, I resigned as Auditor of the Railroad Administration, but was retained by the Director-General as a special accountant, and in conjunction with the late Alexander Smith, of Atlanta, Georgia, was charged with the responsibility of settling up the equipment contracts previously referred to and certifying the costs of the cars and locomotives, of which there were 100,000 cars and 2,550 locomotives, to the Interstate Commerce Commission and to the sundry trust companies which underwrote their purchase by the Railroads of this country.

As at May 1, 1920, the firm with which I have since been and now am associated, opened its offices at Chicago (4) and Washington. I was elected president of the company and have continuously served in that capacity. The firm has engaged in the general practice of accountancy and industrial engineering and appraisal work throughout the United States.

I will describe in a general way the nature of the experience I have had in that connection.

As the head of this firm of public practitioners I have assumed personal responsibility for disposing of many different undertakings during the past eleven years. The firm has made numerous audits of one kind and another. It has made perhaps a hundred different studies of manufacturing costs and transportation costs. It has devised and installed cost accounting systems and production control methods, and planned and supervised the reorganization of production departments and other departments in numerous commercial industries and on three railroads. It has evaluated for rate-making, taxation, and other purposes, more than two billion dollars worth of prop-

erty belonging to transportation agencies and to private enterprises.

As head of the organization, I have directed the performance of all this work. In all save one minor instance I have personally supervised the preparation of reports to our clients and have consulted with them about such reports, because the work was done under my personal supervision and direction.

I will illustrate with a few citations the character of the work to which I now refer.

One of the first responsibilities entrusted to my firm was an examination of the manufacturing cost accounts of the Cambria and Bethlehem Steel Companies, relating to several hundred tons of steel rails which were commandeered by the Secretary of War on behalf of the Director General of Railroads. The commandeering order specified payment on the basis of a flat price per ton, providing such price would yield a ten per cent profit on manufacturing costs to the vendors. Failing in that, then the price was to be increased sufficiently to make a profit allowance of 10%. We examined the manufac-
(5) turing costs of the two steel companies, and furnished data respecting actual costs on the basis of which the accounts were settled. This was a responsible undertaking, involving the disbursement of several hundred thousand dollars of government monies.

We made an extensive study of the costs of manufacturing passenger-train cars in the works of The Pullman Company, to determine, among other things, what would be a reasonable rate of profit to be assessed by the manufacturing department of that company against its investment devoted to common carrier purposes, which was a question involved in proceedings before the Interstate Commerce Commission.

I served as consulting accountant to The Pullman Company in connection with the Interstate Commerce Commission's investigation of its rates, fares and charges, and also with regard to the Pullman surcharge cases. I also served that company as consulting accountant during the early stages of its Federal valuation work.

We installed a storekeeping system, devised the means of exercising executive control over materials and supplies, and cleaned up the stocks of obsolete materials, for this same Pullman Company. This was a gigantic undertaking requiring more than two years to complete, inasmuch as the Pullman stores system covers practically all of the railroad mileage in the United States and a part of the mileage in Canada and Mexico.

We installed a system of shop organization and production control in the large locomotive shops of the Rock Island Railroad at Silvis, Illinois, and upon the successful completion of that undertaking we made an exhaustive study of the principal shops and storehouses on the entire Rock Island System, and submitted recommendations and suggestions to the company's directors with the object of reducing the cost of shop work, eliminating delays awaiting materials needed for equipment repairs, expediting the turnover and curtailing the investment in stores stocks.

We made numerous studies of manufacturing costs in (6) the plants of various car manufacturing companies, also one extensive study of railway shop manufacturing costs in the West Side Shops of the Frisco Railroad at Springfield, Mo.

For several years I served the American Railway Car Manufacturing Association as consulting accountant. I served on its committees, which were working to the end of standardizing accounting practices in the car building industry.

We prepared for sundry railroads throughout the United States claims against the government arising out of the Federal control situation, including, also, the provisions of Sections 204 and 209 of the Interstate Commerce Act as amended in 1920. For the Pullman Company, we helped to prepare the basis of its settlement with the Director General, both as to the operation of its sleeping car lines and the adjudication of differences in the inventory of materials and supplies.

I have acted as mediator in the settlement of a number of cost-plus contracts, covering the repair or construction of equipment between certain car builders and their railroad patrons.

I have made a considerable number of studies of facts relating to transportation rate cases pending before the Interstate Commerce Commission. I have been employed by several of the States to prepare evidence in rate cases before the Interstate Commerce Commission. I have also been employed by numerous shippers and shipper organizations to represent them in proceedings involving rate determinations before the Interstate Commerce Commission and sundry State commissions. I have prepared accounting evidence in three or four recapture cases, involving complete audits of the railroads' accounts, and have served in a consulting capacity on some other cases of that kind.

I was employed by the Livestock Exchange of Kansas City, Mo., and later by the Livestock Exchange of South Saint Joseph, Mo., to make a detailed study of the cost of marketing livestock on the large terminal markets at (7) these points, and represented the respective exchanges in rate-making proceedings before the Secretary of Agriculture.

We have made two evaluations of all of the property of the Pullman Company. We appraised for a Federal

tax case the extensive properties of the Pressed Steel Car Company and its associated companies, and the Western Steel Car and Foundry Company. For reorganization purposes, we appraised the properties of the Buffalo (N. Y.) Car Company, the McGuire-Cummings Car Manufacturing Company (of Paris, Ill.), and a number of other manufacturing companies throughout the country.

That will indicate, in a general way, the character of work on which I have been engaged during the past eleven years.

Q. During that time have you not also made some extensive studies of railway accounting practice, and have you not examined into the questions of accounting for accrued depreciation, as well as accounting for service costs, on steam railroads and other public utility properties, testifying on those subjects before the Interstate Commerce Commission?

A. It is true that I did present evidence before the Interstate Commerce Commission on these subjects in the matters covered by its dockets Ex Parte 91 and No. 15100, the former relating to the general revision of accounting rules and regulations, and the latter to the matter of depreciation charges on steam railroads and telephone and telegraph companies. The preparation of the evidence submitted in these two cases occupied my personal time for the major part of one year. I presented evidence in these two cases on behalf of the National Industrial Traffic League, and sundry other interested organizations of shippers and railroad service users, such as the American Farm Bureau Federation, the National Grange, the National Livestock Producers Association, the National Council of Travelling Salesmen's Associations, and several other organizations of like char-

acter, which, collectively, represented about five million members.

(8) I am familiar with railway accounting rules and regulations as they are prescribed by the Interstate Commerce Commission for uniform observance by all carriers under its jurisdiction.

I am familiar with the rules and regulations of the same authority, with respect to operating and other statistics which railroads are obliged to compile and supply.

I am acquainted with the customary practices of principal railroads as they relate to the keeping of accounts and statistics which are required by the Interstate Commerce Commission.

The customary procedure, as it may be called, operates under similar principles, although there are differences in the methods employed by different railroads in collecting and compiling the data.

Q. For how long have you been working with railroad accounts and statistics?

A. The over-all period is 32 years, which dates from the time I entered the service of the Santa Fe in its division offices. I started at the bottom, and, it might be said, at the beginning. During the next fifteen years, during which time I was in railroad service, my contact with accounts and statistics broadened from dealing with the accounts and statistics relating to only one phase of railway operations on one operating division of one railroad to those relating to virtually all phases of railway activity on two great railway systems. During the next ensuing four years, while with the Interstate Commerce Commission, I personally examined the accounts and observed the accounting practices of many other great systems located in the Central West. During the next four years, while I was auditor of the U. S. Railroad Administration, I had dealings with practically every railroad

in the United States, and, while I did not personally examine their accounts and working methods, their accounts were cleared to the books kept in my office, and I could not (9) have discharged my duties without having a practical knowledge of what was going on in the railroad accounting field. During the last eleven years, not less than fifty and probably about sixty per cent of my personal time has been spent on one problem or another connected with railway accounting or statistical procedure. During that time, I have made at least one, and, in some particulars, several detailed studies of freight transportation costs on every Class I railroad in the United States. Similar studies were made on many individual railroads in different states, and one general study was made of passenger traffic costs and earnings, which involved all Class I railroads in the country. Moreover, I spent practically the whole of one year, with one special assistant, in a critical, detailed study of standard railway accounting practice in general, the object being to detect and suggest to the Interstate Commerce Commission the correction of practices which were inimical to public interest, as I perceived it. It is conservative to say that I have been working with railway accounts and statistics in a comprehensive fashion since 1911, or, say, twenty years, the previous 12 years being regarded as an apprenticeship.

During the past 11 or 12 years, I have also had some experience in industrial accounting.

I have made audits of concerns which manufactured many different articles, from delicate electrical instruments to railroad freight and passenger cars; of street railways; of advertising agencies; of promotional enterprises; of real estate sales agencies; of bond and mortgage companies; of foundries; of printing establishments, and whatnot. In many cases, and for industries of diversified character, we have made studies of manufacturing

or production costs, and, in some cases, have installed new methods, or revised old methods of accounting for such costs.

Q. In any of your assignments, have you had occasion to consider the earnings and the expenses of steam railroads as they relate to individual states, and particularly, cases where the same railroad was situate and operated in more than one state?

(10) A. Yes, in a number of instances, which involved the States of Missouri, Kansas, Oklahoma, Arkansas, Kentucky, Mississippi, Alabama, Louisiana, Montana, North Dakota, South Dakota, Nebraska, Colorado, New York and North Carolina. I have found it necessary, during the past few years, to examine into the costs of railroad operations in all of these States, and the examinations extended to all Class I roads serving each State.

I am familiar with the contentions of the N. & W. Railway Company in this case as they are set forth in its protest concerning the assessment of income tax for the years 1927, 1928, and 1929 by the State of North Carolina, and also with the allegations in its notice of appeal from the decision of the State's Commissioner of Revenue, dated Dec. 20, 1930.

Q-14: Have you made an examination of the facts for the purpose of testifying in this case?

I am familiar with the text of Sections 312 of the North Carolina Revenue Laws under the provisions of which the taxes in question have been assessed.

Q-16. In your own way, please proceed to recount the nature and extent of your examination of the points raised in the Railway Company's protest against the assessment of the additional taxes upon which its appeal is predicated, and set forth the conclusions to which they have led you.

A-16. For the sake of brevity, I shall henceforth refer to the Norfolk & Western Railway Company as the Railway, and to the State of North Carolina as the State. When I hereinafter use the term "operating ratio," I refer to the ratio of railway operating expenses to railway operating revenues, and use it in the same sense as when employed by other witnesses, and by the law, in this connection.

I shall first address myself to the Railway's claim, set (11) forth in paragraph (a) of its protest dated November 26, 1930, and in Section 1 of its Notice of Appeal dated January 7, 1931, that the formula prescribed by the statute for the ascertainment of taxable income is not fairly applicable to the case of the Railway in the particular that the operating ratio for the Railway's entire line of road may not fairly be used for determining its operating expenses in North Carolina because it results in an understatement of expenses incurred within the State, and, consequently, an overstatement of the net revenues which go to make up the taxable income; that the use of the entire line, or system, operating ratio is irrelevant; that the system ratio is much lower than the ratio truly applicable to the State; and that the use of the statutory formula has the effect of taxing revenues not earned within the State of North Carolina.

In order to avert a misunderstanding later, I should say at this point that the amount of operating expenses actually incurred by the Railway in the State, whether they be actually more or less than the operating expense element which the statutory formula comprehends in the taxable income upon which income taxes are assessed, may be appropriately considered, in my opinion, only in the event all other elements which the statutory formula comprehends in the taxable base are also considered, for the reason that the elements comprised in the formulated

method of arriving at taxable income are necessarily interdependent. To disintegrate the formula into its component elements and then consider the reasonableness of the manner in which one element is determined and fail to consider in the same light the reasonableness of other constituent elements which conjointly contrive the end sought by use of the formula, is manifestly improper and illogical, because the means to the end are in themselves unimportant. The important consideration is whether the taxable income found is in correct amount, irrespective of the manner in which it is arrived at. Obviously that fact (12) cannot be determined by testing certain selected elements such as operating expenses and car hire, for example, while ignoring others.

The operating ratio, as previously said, is the ratio of railway operating expenses to railway operating revenues. Railway operating expenses are those expenses which are entailed by the operating performance which earns the operating revenues. Operating revenues, on the other hand, are the product of operating performances. The items of outgo and income classable under each heading are defined in the uniform accounting rules and regulations of the Interstate Commerce Commission which are observed by all railroads, and there is congruence between them. The operating ratio, manifestly, is the expression of an equation,—the relation of operating expenses on the one hand to operating revenues on the other hand. Any consideration of the operating ratio, therefore, inevitable involves both sides of the equation which it expresses. If results obtained by using the operating ratio as a convenient measuring stick for ascertaining net revenues are challenged with the assertion that the method produces a wrong result, the proof consists, not in showing the actual expenses only, but in showing both the actual expenses and the actual revenues, and

that the difference between them is at variance with the result obtained from the use of an operating ratio. For example, under the circumstances of the instant case, for the purpose of developing taxable income, the statutory formula may apply a system operating ratio of 50% to a gross revenue factor of $1,000,000, with the resultant operating expense factor of $500,000 for use in determining taxable income. The fact that operating expense may actually be $750,000, rather than $500,000 proves nothing concerning the correctness or incorrectness of the taxable income developed by the formula, because along with an actual expense of $750,000 there may be an actual gross revenue of $1,250,000, instead of the $1,000,000 as used, in which event the net revenue would still be $500,000 ($1,250,000 minus $750,000), or the equivalent of the result of applying a (13) 50% operating ratio to $1,000,000 representing gross revenues. Obviously, in order to determine that the use of the 50% ratio in this illustration produces a wrong result, we must not only establish the fact that the resultant operating expense factor is in disagreement with the actual expenses, but we must also determine that the gross operating revenues are $1,000,000, and not some other sum which has a compensating influence upon the result.

The Railway has undertaken to show through the several exhibits of Witnesses Konrad and Vaughan, that the statutory formula's use of the system operating ratio applied to amounts representing gross revenues, results in an operating expense factor for each year which is at variance with the actual expenses entailed by operations within the State. Taking the revenues reported by the Railway as having been earned in North Carolina, and applying thereto the system operating ratio, the State arrived at the following formulated expense factors for use in com-

puting each year's taxable income, in comparison with the so-called actual expenses in the State, as claimed by the Railway:

Year	State's Opr. Exp. factor	Actual Opr. Exp. claimed by Ry.	Ry's claim in excess
1927	$869,431.99	$1,520,935.32	$651,503.33
1928	812,134.88	1,455,623.74	643,488.86
1929	730,228.03	1,444,704.56	714,476.53

The Railway's contention is that in the degree in which the operating expenses as claimed by it exceed the operating expense factor comprehended in the State's formulated taxable income, the taxable income is in that particular excessive. The Railway also claims that, in that particular, and in that degree, the formula subjects to North Carolina taxation, income which was not earned within the State. In other words, the Railway's consideration of the operations of the statutory formula involving the use of the system operating ratio is confined to but one side of the equation—that is, the operating expense side. The Railway accepts, without modifica-
(14) tion, the operating revenue side of the equation which represents the gross revenues to which the State applied the system operating ratio to determine the expense factor which the Railway contends is erroneous and discriminatory in character.

The gross revenue side of that equation which is expressed by the operating ratio is perhaps accepted by the Railway as unchangeable and above suspicion by reason of its conception that such revenues are determined pursuant to the requirements of the statutory formula, notwithstanding its attack upon the integrity of that formula. Be that as it may, however, the Railway makes no criticism of the yearly gross revenues used by the State in computing taxable income, and in Witness

Vaughn's Exhibit B the Railway uses the same amounts in computing what it asserts to be the correct taxable income, if any, for the respective years 1927, 1928, and 1929.

The State's statutes of 1927 and 1929 do not differ in defining the gross revenue element of taxable income. They provide that as in the case of the Railway, when the taxpayer railroad's business is partly within and partly without the State the gross revenue factor to be used in ascertaining taxable income shall include its gross operating revenues earned wholly within the State, and "the equal mileage proportion" within the State of its interstate business, which is to say that the gross revenue accredited to the State shall consist of the revenue earned solely within the State, plus the equal mileage proportion of interstate revenue earned partly within and partly outside the State.

The gross revenue reported by the Railway as attributable to its operations within the State, purports to be for the respective years 1927, 1928 and 1929, gross revenue computed in compliance with the statutory requirement. For the three years the amounts are, respectively, $1,384,005.08, $1,305,683.08, and $1,300,495.16. These amounts were currently reported by the Railway to the North Carolina Corporation Commission as required by law; they were incorporated in the Railway's Income (15) Tax Returns filed with the State's Commissioner of Revenue, and again appear in Witness Vaughn's Exhibit B in which is set forth the component elements of taxable income as claimed by the State and as contended for by the Railway in this proceeding.

In this connection it is of interest to point out that both the 1927 and 1929 North Carolina revenue acts specify that the gross revenues and other items referred to therein are amounts shown by records kept in accord-

ance with the "standard classification of accounting of the Interstate Commerce Commission." The accounting classifications of the Interstate Commerce Commission define and classify operating revenues, operating expenses, and all other disbursements and receipts of railways, but they do not require the segregation of intrastate and interstate revenues and expenses, they do not define such items, and they do not require, or prescribe basis for, the apportionment of revenues and expenses to individual states through which the Railway may operate.

Of the aforementioned amounts of gross revenue assigned to the State and reported by the Railway as being attributable to its operations in North Carolina, the following amounts represent revenues derived from the transportation of freight at then prevailing tariff rates (I. C. C. Account 101—Freight Revenue): The percentage of such revenue to gross revenues of all kinds is also noted:

Year	"Intrastate" Revenue	Proportion of Interstate Revenue	Total for North Carolina	% of All N. C. Revenue
1927	$65,391.82	$1,093,045.95	$1,158,437.77	83.70%
1928	62,428.38	1,047,066.80	1,109,495.18	84.97%
1929	58,437.24	1,047,949.33	1,106,386.57	85.07%

The foregoing amounts are reflected by the records kept by the Railway and appear in Witness Vaughn's Exhibit B. The amounts shown as intrastate revenues are not, however, as would be inferred, all the revenue earned within the State exclusively. They are the revenues derived from the handling of intrastate shipments only, and do not include amounts earned exclusively within

(16) North Carolina on movements of interstate traffic which the Railway did not transport beyond the boundaries of the State, but which moved through another state or states via other lines of railway. In classifying its freight revenues the Railway has not respected North Carolina intrastate earnings on interstate traffic, but has classified its revenues according to the character of the traffic from which derived, rather than according to locality of the service rendered. Revenues earned within the State on interstate traffic transported solely within the State are classed by the Railway as interstate revenues subject to the apportionment on a mileage prorate basis. If it were a fact that they were prorated to the State on a mileage prorate basis this misclassification would be without significance, but that is not the case, as will be shown later. The amounts of $65,391.82, $62,428.38 and $58,437.24, relating to the years 1927, 1928 and 1929, respectively, reported as "intrastate" revenue were derived from the movement of intrastate traffic and are earnings peculiar to the State.

The amounts referred to and shown on Witness Vaughn's Exhibit B as the State's proportion of interstate revenue are the aggregates of fractional parts of the revenue derived from individual shipments of freight which originated or terminated in, or passed through, the State, including, as previously explained, the Railway's proportion of revenue on interstate shipments which it earned exclusively within the State. All of the Railway's share of the revenue on business of the latter class should have been distributed direct to the State since it involved no apportionment. All other freight revenue derived from interstate traffic touching North Carolina territory should, according to the requirements of the statutory formula, and according to the avowed intentions of the Railway, have been distributed so as to

accredit to the State an "equal mileage proportion." This was not done. The Railway's method of distributing revenue to states is based upon an arithmetical fallacy. (17) Hence the proportion of revenue derived from the transportation of interstate shipments which is assigned to the State for each of the three years in point is not the "equal mileage proportion" which the statutory formula calls for, but instead are merely figures which result from a combination and treatment of numbers. The truth of this statement will be demonstrated after I shall have explained the method used by the Railway in apportioning to North Carolina, and other states as well, the revenues derived from interstate freight traffic.

In order that the Railway's method of accounting for freight revenue to individual states may be understood, it should be borne in mind that the freight movement which produces the revenue is greatly diversified as to character and moves from and to many different points of origin and delivery. The size of individual shipments vary from a package weighing a few pounds moving as a less-carload consignment, to large consignments of such bulk or weight as to constitute a full carload moving as a carload shipment. It should also be borne in mind that the bases upon which charges for transportation are predicated are numerous and varied, depending upon the authoritative rate schedules covering the particular movement involved, the classification rating attaching to shipments of that particular kind, whether it moves as carload or a less-carload consignment, etc. It is important to remember that each consignment carries its own service charges which are determined according to peculiarities of that particular shipment, and that they must be collected and accounted for individually. Many thousands of individual consignments of freight are handled each month, but the great volume of transactions

on a road like the Railway makes it economically possible to utilize high-speed mechanical accounting devices in disposing of much of the work entailed.

The Railway makes a monthly distribution of its revenues. For this purpose it uses the well-known punch card system. Under this system the salient facts are transcribed by punching holes in cards of standard size and (18) design which can be sorted for distribution and totalized by electrically operated accounting machines of great speed and accuracy. A separate card is made for each consignment. With this detailed and flexible media and the use of high-speed automatic sorting and tabulating machinery the great volume of detail is brought under control. (With this brief description we may dismiss the process employed for handling details and consider the principles which underlie the method used in distributing revenues to states on what the Railway manifestly considers to be a mileage prorate basis.) The mileage prorate requires a ratable distribution of revenue on the basis of the miles traversed by the consignment earning the revenue being distributed. For example, if a consignment was transported a total distance of 100 miles, of which 50 miles was in State A, 25 miles in State B, and 25 miles in State C, the revenue therefrom would be divisible 50/100ths to State A, 25/100ths to State B, and 25/100ths to State C.

The tabulating cards representing individual consignments taken into account each month are sorted into three general classes, to-wit: Coal, Coke, and Merchandise (which embraces all commodities, other than coal and coke.) Each of these three general classes are then subdivided into four sub-classes respecting the nature of the movement, to-wit: local-to-line; local stations to foreign line; foreign line to local stations; and foreign line to

foreign line. The termini and the connecting lines are identified in each case, and also the Interstate Commerce Commission's commodity classification number used for statistical accounting. The classification for rating purposes is not noted, however, nor is the rate under which the shipment moves.

When the data have been arranged in the manner described, the intrastate shipments are then segregated. The term "intrastate" as here used characterizes the movement of the shipment, not the locale of the revenue earned. A taxpayer's intrastate earnings may be derived from the handling of interstate traffic, but as previously (19) said, that distinction was not recognized by the Railway in distributing its revenue to North Carolina.

The procedure described henceforth relates to the distribution of gross revenues earned by the transportation of interstate freight traffic. For the entire line of road, these revenues are 94.67%, 94.84% and 95.48%, respectively, of all freight revenues (both intrastate and interstate) for the years 1927, 1928 and 1929. With respect to the gross revenues assigned to North Carolina, the interstate freight revenue is 94.36%, 94.37% and 94.72% of the sum of both intrastate and interstate revenue assigned to the State, and 78.98%, 80.19% and 80.58%, respectively, of all railway operating revenues, both freight and passenger, assigned to the State. An idea may be gained from these percentages (particularly those first named) of the importance which attaches to the method employed by the Railway in apportioning revenue on what purports to be a mileage prorate basis:

For the purpose of distributing revenue to states, all interstate shipments are first grouped according to the termini between which they moved over the Railway's line of road. Separate groupings are made of the ship-

ments in each of the three general classes (Coal, Coke and Merchandise), and the four sub-classes thereunder (Local-to-line, Local stations to Foreign Line, Foreign Line to Local Stations, and Foreign Line to Foreign Line). For example, taking the four different sub-classes of coal traffic, shipments in each sub-class are grouped, which move between, for example,

Bluefield, W. Va., and Columbus, Ohio, 320 miles
Bluefield, W. Va., and Cincinnati, Ohio, 327 miles
Bluefield, W. Va., and Winston-Salem, N. C., 227 miles
Bluefield, W. Va., and Norfolk, Va., 363 miles
and so on.

When these groupings have been completed and the total revenue determined for each group of shipments, figures are then spread on a record which provides for showing the aggregate revenue for each group opposite (20) the number of miles each group of shipments was transported in each state through which they moved. The 320 miles, Bluefield, W. Va.,-Columbus, Ohio, for instance, represents a haul of 182 miles in West Virginia and 138 miles in Ohio. The aggregate revenue for each group of shipments which traversed 182 miles in West Virginia would be totaled and multiplied by 182 miles and the resultant dollar-miles credited to West Virginia. The aggregate revenue for each group of shipments which traversed 138 miles in Ohio would be similarly totaled and extended and credited to Ohio. Each and every group of shipments which moved the same number of miles in a state, regardless of whether or not the movement was over the same section of railroad, between the same stations, or having the total haul, are entered in the same column.

While each of the several classes of traffic are treated separately in this manner they are not prorated separately. After having been distributed the several groups are then recapitulated and totaled, one total being shown at the foot of each column captioned with a specific mileage movement in a state. This total is the aggregate revenue derived from all groups of shipments which were transported that distance in the State without regard to the distances they may have been transported in other states, without regard to differences in the total haul of individual shipments, and without regard to the character of the traffic, whether coal, coke, or other traffic, without regard to whether the movement was in carload consignments or less carload consignments, and without regard to the quality of the revenue earnings, whether relatively rich or relatively lean as measured by a ton-mile or car-mile yardstick.

This aggregate revenue by state mileage blocks is then multiplied by the mileage of the block, and this product is called "revenue dollar-miles." For example, in a particular state, if $12,500 was the total of the aggregate revenue on all shipments which moved 100 miles and if $18,900 was the total of the aggregate revenue of all shipments which moved 125 miles, in the State, then the (21) $12,500 would be multiplied by 100 (miles) and the $18,900 would be multiplied by 125 (miles), giving products of 1,250,000 and 2,362,500 dollar-miles, respectively. The same treatment would be accorded each mileage block in each state. Then the dollar-miles in all states would be brought to a total, and the dollar-miles in each state would be brought to a total. The percentage relationship of the total dollar-miles for each state to the total dollar-miles for all states is found for all coal, all coke, and all merchandise traffic. The resultant percentages for each state are then applied to

the total interstate revenue from coal, coke, and merchandise, collectively, and the product is taken as the respective state's proportion of interstate revenue, supposedly apportioned on a mileage-prorate basis.

The Railway's system earnings on freight traffic moving in interstate commerce during the years 1927, 1928, 1929, were apportioned to the State of North Carolina after this fashion. The method was developed by the Railway's accounting department with the object of curtailing the amount of clerical work required in the apportionment of revenues to states. Specifically it was sought to escape the necessity of prorating the revenue on individual consignments, or the total revenue on consignments which were alike in all essential particulars.

If the Railway's method of distribution be considered in a casual way it may appeal to one as giving the same results as though the revenue earned on each individual consignment were separately apportioned to the states through which transported on the basis of the number of miles transported in each state, and in addition to afford the advantage of greatly reducing the number of calculations which would otherwise be required. As a matter of fact, however, the method violates the principles of arithmetic and fails to accomplish even a close approximation of the results of an actual mileage prorate. The results it produces are wholly misleading because variable in unknown degree. The amounts representing gross revenues assigned to North Carolina as (22) well as other states as the result of computation under this method, are not determined on a mileage prorate basis, or on any other basis which employs a definite unit of measurement. They have no significance because they are merely the results of illogical combinations and admixtures of numbers.

The Railway's method of apportioning revenue to States is illogical and violates the laws of arithmetic in the particular that it seeks to average factors which cannot be averaged because they have widely divergent qualities in all particulars save one, the one common quality being the distance hauled in the same state. The unit revenue per net ton-mile, or per car-mile, varies from many causes, such as the total distance hauled; the kind, bulk, weight and value of the commodity transported; depressed rates due to competitive influences; abnormally high rates due to operating difficulties or other reasons; single line hauls versus multiple line hauls, et cetera. With regard to a ratable distribution of revenue on a mileage basis, the relation of the haul in each state to the total haul in all states is absolutely controlling. If we group a large number of shipments on which there is variation in the total hauls, in the ratio of the haul in one state to the total haul in all states, and in the amount of revenue also, and then deal with the resultant totals as the Railway's method does, the effect is to employ an average of both the haul and the revenue yield. As this averaged haul of all grouped shipments differs from the actual haul of those consignments which were transported in a particular state, there is a consequent distortion of the revenue assignment to the state due to this cause; and as the averaged unit revenue varies from the actual unit revenue of shipments transported within the same state there is another distortion of the revenue assignment to the state due to this cause. One of these causes may affect the apportionment adversely and the other favorably, depending upon circumstances peculiar to the case. There is thus occasioned a vaccillation in the re-
(23) sults derived from the Railway's method which changes from month to month with fluctuations in the vol-

ume and kind of traffic, not only in a particular state, but on the railroad as a whole.

We may satisfy ourselves that the Railway's method is defective in theory and productive of variable results due to the causes alleged by examining a series of exhibits which I have prepared to illustrate the point.

The first of these exhibits consists of one sheet, and is identified as follows:

(MAKER'S EXHIBIT NO. R-1)

Concerning the

Apportionment of Gross Revenue to Individual States

Contrasting the Results Produced in a Particular Instance by the N & W Method and a Mileage Prorate.

Exhibit No._____

Before the
HONORABLE SUPERIOR COURT OF WAKE COUNTY, NORTH CAROLINA
Concerning the

APPORTIONMENT OF GROSS REVENUE TO INDIVIDUAL STATES CONTRASTING THE RESULTS PRODUCED IN A PARTICULAR INSTANCE BY THE N. & W. METHOD AND A MILEAGE PRORATE

Using for the example one carload of each kind of traffic per I. C. C. Commodity Classification actually transported by the Norfolk & Western Railway in North Carolina in January, 1929.

INTERSTATE TRAFFIC

Witness: Roberts, J. W.
(Maker's No. R-1)

I.C.C. Class	Commodity Classification	From	To	Gross Revenue
a	b	c	d	e
10	Wheat	Norton, Va. (W.V.)	Durham, N. C.	$ 156.00
50	Flour, wheat	Shenandoah Jct.	Winston-Salem, N. C.	34.35
61	Mill products, n.o.s.	Bannon, Ohio	Madison, N. C.	128.38
70	Hay and alfalfa	Hagerstown, Md.	Winston-Salem, N. C.	28.30
80	Tobacco, leaf	Norton, Va.	Winston-Salem, N. C.	57.90
90	Cotton in bales	Roxboro, N. C.	Briston, Va.	102.25
110	Oranges and grapefruit	Winston-Salem, N. C.	Columbus, Ohio	156.72

120	Apples, fresh	Hagerstown, Md.	Winston-Salem, N. C.	58.30
143	Vegetables, fresh	Winston-Salem, N. C.	Columbus, Ohio	85.79
300	Bituminous coal	Red Ash, W. Va.	Winston-Salem, N. C.	140.46
352	Stone, rough, n.o.s.	Winston-Salem, N. C.	Hagerstown, Md.	40.22
392	Products of mines, n.o.s.	Winston-Salem, N. C.	Hagerstown, Md.	67.34
401	Posts, poles, and piling	Winston-Salem, N. C.	Hagerstown, Md.	119.95
420	Pulpwood	Stoneville, N. C.	Glasgow, Va.	46.65
430	Lumber, shingles, and lath	Winston-Salem, N. C.	Hagerstown, Md.	37.43
431	Box, crate and cooperage materials	Winston-Salem, N. C.	Hagerstown, Md.	51.30
432	Veneer and built up wood	Norton, Va.	Winston-Salem, N. C.	117.12
443	Products of forests, n.o.s.	Winston-Salem, N. C.	Norfolk, Va.	54.41
450	Petroleum oils, refined, etc.	Roxboro, N. C.	Norfolk, Va.	165.21
513	Iron and steel, rated Ofl. 5th	Kenova, W. Va.	Winston-Salem, N. C.	99.02
530	Machinery and boilers	Hagerstown, Md.	Winston-Salem, N. C.	79.20
540	Cement, natural or portland	Hagerstown, Md.	Winston-Salem, N. C.	58.54
550	Brick, common	Winston-Salem, N. C.	Pine Hill, N. C.	30.25
560	Lime, common	Plasterco, Va.	Durham, N. C.	56.30
561	Plaster and dry kalsomine	Plasterco, Va.	Winston-Salem, N. C.	40.48
590	Automobiles, passenger	Valley Xing, Ohio	Winston-Salem, N. C.	102.94
611	Furniture, other than metal	Winston-Salem, N. C.	Hagerstown, Md.	79.80
640	Fertilizers, n.o.s.	Roxboro, N. C.	Norfolk, Va.	78.75
670	Cotton, cloth and fibre	Winston-Salem, N. C.	Glen Jean, Ohio	45.40
690	Tobacco, manufactured products	Winston-Salem, N. C.	Ivorydale, Ohio	167.12
701	Manufactures and miscellaneous	Winston-Salem, N. C.	Hagerstown, Md.	137.58
A	Totals, for 31 cars			$ 2,623.46

INTERSTATE TRAFFIC—*Continued*

B Recapitulation of Revenue By Mileage Blocks

C
D "Revenue Dollar-miles" as under represent the total of the products resulting from the multiplication of dollars by miles.
E
F
G
H
I
J
K

L	Aggregate Revenue Dollar-Miles	1,004,434.15
M	Percent each state of total for all states	100.00%
N	Revenue Apportioned To States N. & W. Method	$ 2,623.46
O	Revenue Apportioned To States On A Mileage Prorate Basis	$ 2,623.46
P	Error In N. & W. Method—Ratio (%) N. & W. Results To Mileage Prorate	100.00%

Exhibit No._____
Witness: Roberts, J. W.
(Maker's No. R-1)

RESULTS OBTAINED BY NORFOLK & WESTERN METHOD OF APPORTIONMENT

I.C.C. Class	Miles Hauled	Avg. Revenue Per Car Mile	Ohio		W. Va.		Virginia		Maryland		N. C.	
			Miles	Rev.	Miles	Rev.	Miles	Rev.	Miles	Rev.	Miles	Rev..
a	f	g	h	i	j	k	l	m	n	o	p	q
10	380	41.05c			24	$156.00	314	$156.00			42	$156.00
50	338	10.16c			13	34.35	278	34.35			47	34.35
61	507	25.32c	130	$128.38	195	128.38	167	128.38			15	128.38
70	362	7.82c			20	28.30	278	28.30	17	$ 28.30	47	28.30
80	331	17.49c			24	57.90	260	57.90			47	57.90
90	290	35.26c					279	102.25			11	102.25
110	547	28.65c	138	156.72	195	156.72	167	156.72			47	156.72
120	362	16.10c			20	58.30	278	58.30	17	58.30	47	58.30
142	547	15.68c	138	85.79	195	85.79	167	85.79			47	85.79
300	273	51.45c			24	140.46	202	140.46			47	140.46
352	362	11.11c			20	40.22	278	40.22	17	40.22	47	40.22
392	362	18.60c			20	67.34	278	67.34	17	67.34	47	67.34
401	362	33.14c			20	119.95	278	119.95	17	119.95	47	119.95
420	126	37.02c					119	46.65			7	46.65

INTERSTATE TRAFFIC—*Continued*

430	362	10.34c			20	37.43	278	37.43	17	37.43	47	37.43
431	362	14.17c			20	51.30	278	51.30	17	51.30	47	51.30
432	331	35.38c			24	117.12	260	117.12			47	117.12
443	380	14.32c					333	54.41			47	54.41
450	290	56.97c					279	165.21			11	165.21
513	408	24.27c			194	99.02	167	99.02			47	99.02
530	362	21.88c			20	79.20	278	79.20	17	79.20	47	79.20
540	362	16.17c			20	58.54	278	58.54	17	58.54	47	58.54
550	34	88.97c									34	30.25
560	305	18.46c					258	56.30			47	56.30
561	251	16.13c					204	40.48			47	40.48
590	537	19.17c	128	102.94	195	102.94	167	102.94			47	102.94
611	362	22.04c			20	79.80	278	79.80	17	79.80	47	79.80
640	290	27.16c					279	78.75			11	78.75
670	475	9.56c	66	45.40	195	45.40	167	45.40			47	45.40
690	554	30.17c	145	167.12	195	167.12	167	167.12			47	167.12
701	362	38.01c			20	137.58	278	137.58	17	137.58	47	137.58

	Avg. Haul											
A	360.5 Mi.											
B			66	$ 45.40	13	$ 34.35	119	$ 46.65	17	$757.96	7	$ 46.65
C			128	102.94	20	757.96	167	785.37			11	346.21
D			130	128.38	24	471.48	202	140.46			15	128.38
E			138	242.51	194	99.02	204	40.48			34	30.25
F			145	167.12	195	686.35	258	56.30			42	156.00

G					
H					
I			260 175.02		47 1,915.97
J			278 792.31		
K			279 346.21		
			314 156.00		
			333 54.41		
L	$ 90,560.90	$ 179,969.40	$ 617,326.88	$ 12,885.32	$ 103,691.65
M	9.02%	17.92%	61.46%	1.28%	10.32%
N	$ 236.64	$ 470.12	$ 1,612.38	$ 33.58	$ 270.74
O	$ 168.70	$ 375.83	$ 1,741.18	$ 35.60	$ 302.15
P	140.27%	125.09%	92.60%	94.33%	89.60%

Exhibit No.----------

Witness: Roberts, J. W.
(Maker's No. R-1)

I.C.C. Class	Results Obtained By Mileage Prorate					North Carolina Proportion By N. & W. Method		
	Ohio	W. Va.	Virginia	Maryland	N. C.	Amount	Percent of Mileage Prorate
a	r	s	t	u	v	w	x
10		$ 9.85	$ 128.90		$ 17.25	$ 17.11	99.19%
50		1.32	28.25		4.78	4.22	88.28%
61	$ 32.92	49.38	42.28		3.80	5.03	132.37%
70		1.56	21.73	$ 1.33	3.68	3.47	94.29%
80		4.20	45.48		8.22	7.11	86.50%
90			98.37		3.88	2.94	75.77%
110	39.54	55.87	47.85		13.46	19.23	142.87%
120		3.22	44.77	2.74	7.57	7.15	94.45%
142	21.64	30.58	26.20		7.37	10.53	142.88%
300		12.35	103.93		24.18	17.24	71.30%
352		2.22	30.89	1.89	5.22	4.94	94.64%

392		3.72	51.72	3.16	8.74	8.26	94.51%
401		6.62	92.12	5.63	15.58	14.72	94.48%
420			44.06		2.59	85	32.82%
430		2.07	28.74	1.76	4.86	4.59	94.44%
431		2.83	39.40	2.41	6.66	6.30	94.59%
432		8.49	92.00		16.63	14.37	86.41%
443			47.68		6.73	6.68	99.26%
450			158.94		6.27	4.74	75.60%
513		47.08	40.53		11.41	12.15	106.49%
530		4.38	60.82	3.72	10.28	9.72	94.55%
540		3.23	44.96	2.75	7.60	7.18	94.47%
550					30.25	2.69	8.89%
560			47.62		8.68	6.91	79.61%
561			32.90		7.58	4.97	65.57%
590	24.54	37.38	32.01		9.01	12.63	140.18%
611		4.41	61.28	3.75	10.36	9.79	94.50%
640			75.77		2.98	2.26	75.84%
670	6.31	18.64	15.96		4.49	5.57	124.05%
690	43.75	58.83	50.36		14.18	20.51	144.64%
701		7.60	105.66	6.46	17.86	16.88	94.51%
A	$ 168.70	$ 375.83	$ 1,741.18	$ 35.60	$ 302.15	$ 270.74	89.60%

On this exhibit I have shown the commodity transported, the termini of its movement, the revenue earned, and the miles hauled for one carload shipment of each of thirty-one different classes of traffic according to the Interstate Commerce Commission's Commodity Classification. These shipments actually moved in the State of North Carolina during the month of January, 1929. The thirty-one commodity classes here represented are all the classes of traffic which individually comprised one-half of one per cent or more of the freight traffic moving in North Carolina via N&W rails during the month. In revenue earnings, total distance hauled, and miles of haul within the State, the exhibited items are typical illustrations of the differences in the peculiarities of carload shipments. Variations in the total haul may be noted from Column F—"Miles Hauled." The shortest haul is 34 miles and the longest one 554 miles. The hauls in North Carolina vary from 7 miles to 47 miles, as may be noted from the "Miles" sub-column lettered P under the column captioned "North Carolina" to the right center of the sheet. The variation in the revenue yield, on a car-mile basis, may be observed from Column G, cap-
(24) tioned "Average Revenue Per Car-mile," to the left center of the sheet.

This Exhibit R-1 exemplifies and explains the Railway's method of apportioning revenue as previously described. The total haul in miles, shown in Column F, is subdivided in Columns H, J, L, N and P, according to the haul in each State which the shipment traversed, that is, Ohio, West Virginia, Virginia, Maryland, and North Carolina, respectively. Opposite the miles of haul in the respective States is shown in each case the total amount of revenue earned on the shipment. Observe that the same amount shown as gross revenue in Column

E also appears in Columns I, K, M, O and Q under the respective States in which the shipment moved.

Opposite lines (B) to (K), in the lower section of the exhibit, appear the total amounts of revenue for each of the mileage blocks as shown above, and on Line (L) is shown, for each State, the aggregate dollar-miles obtained by multiplying the number of dollars set opposite each mileage block on Lines (B) to (K) and then taking the total of the products of the multiplications. In Column E on Line (L) is shown, in the figure 1,004,434.15, the grand total dollar-miles for all States. This figure is the denominator, and the dollar-miles shown on the same line under the columns for the respective States is the numerator, of the fraction indicating the proportion of gross revenue appearing in Column E on Line (A) which is assigned to the respective States. For the sake of clarity I have expressed these fractions in percentages on this exhibit, and they appear on Line (M). In this case the $2,623.46 of gross revenue appearing in Column E, Line (A), represents 100% of the amount distributable, and of this amount, according to the Railway's method, in this case Ohio would be credited with (90,560.90/1004434.15ths) or 9.02%, West Virginia 17.92%, Virginia 61.46%, Maryland 1.28%, and North Carolina 10.32%, the resultant amounts being shown on Line (N) in the appropriate columns, to-wit: Ohio, $236.64; West Virginia, $470.12; Virginia, $1,612.38; Maryland, (25) $33.58, and North Carolina, $270.74, the total of these amounts being $2,623.46 which in this instance is the amount of gross revenue to be distributed.

At the right-hand side of this exhibit, in Columns R to V, appearing opposite each item, are amounts of revenue assignable to the respective states on a mileage prorate basis. In this instance, the total haul of each shipment, as shown in Column F, becomes the denominator, and

the miles the shipment is hauled in each state becomes the numerator, of the fraction indicating the proportion of the revenue assignable to the State, each shipment being separately prorated. These results represent the "equal mileage prorate" mentioned in the State's statutory formula, and accomplish a ratable spread of the revenue according to the miles transported in each state.

To facilitate comparison, the credits to the states resulting from a mileage prorate, as shown on Line (A), Columns R to V, are brought down to Line (O), Columns H to Q, so as to be in proximity to the amounts assigned to each state by the N. & W. method which appear on Line (N). On Line (P) are shown the percentages which express the relationship between the amounts assigned to respective states by the Railway's method and those assigned by the mileage prorate. The Railway's method assigns to Ohio 140.27% of the mileage prorate, to West Virginia 125.09%, to Virginia 92.60%, to Maryland 94.33%, and to North Carolina only 89.60%. The differences between these percentages and 100% indicate the margin of error in the Railway's method as applied to this particular lot of shipments. With another group of shipments there would be a change in the margins of error in the Railway's method, as we shall observe in a moment by the examination of other exhibits.

Before leaving this Exhibit R-1, however, and in order to obtain a little more light on the peculiar operation of the Railway's method, let us examine Columns W and X at the right-hand side of this exhibit.

(26) In Column W is shown the proportional amount of the $270.74 which the Railway's method assigns to North Carolina out of the $2,623.46 of revenue earned on these 31 carload consignments. In Column X appear the percentages indicating the relation of the amount in Column W to the amount in Column V, which is the mileage pro-

rate of the revenue. From the percentages in Column X it may be observed that there is a wide variation in the results obtained by the Railway's method. In the case of item Class 550, common brick, moving from Winston-Salem to Pine Hill, North Carolina, the revenue earned was $30.25 for a haul of 34 miles wholly within the borders of North Carolina. This was interstate traffic, but the Railway's earnings were intrastate to North Carolina, so that from any point of view the $30.25 earned should have been assigned to North Carolina. This intrastate revenue was not assigned direct to the State, however, but pursuant to the Railway's practice was grouped and distributed as a part of the January, 1929, revenues derived from interstate traffic on the system as a whole. The effect of including this shipment in the group of 31 consignments here exhibited for illustrative purposes is to assign to North Carolina only 8.89% of the revenue creditable to it, which is to say only $2.69 out of the $30.25. The balance is credited to other states. For a contrary effect, we may look at the last item but one in the top section of the exhibit: Item Class 690, which is a carload of manufactured tobacco products, moved from Winston-Salem to Ivorydale (near Cincinnati) Ohio, on which the N. & W. revenue was $167.12 for a total haul of 554 miles, of which 47 miles was in North Carolina. On a mileage prorate basis the State was entitled to credit for $14.18 of the total, but the Railway's method, as it would work in this illustrative case, would credit North Carolina with $20.51, or 144.64% of the mileage prorate.

To provide contrast with the results cited in the case of this carload of manufactured tobacco products, where (27) the State's ratable proportion of the revenue is overstated 44.64% by the Railway's method, let us look at item Class 420, Pulpwood, moving from Stoneville, North

Carolina, to Glasgow, Virginia, with revenue of $46.65 for a haul of 126 miles, only 7 of which were in North Carolina. In this instance the State's proportion on a mileage prorate is $2.59, but the Railway's method would give it but 85c, or 32.82%, of the amount due.

These variations in the results of the Railway's method are traceable to differences in the total haul of individual shipments, in the ratio of the haul in the State to the total haul, and in the unit revenue (here expressed on a car-mile basis), but the former has the more important effect in the illustrative case set forth on this exhibit.

In several instances on this exhibit where the total haul and the North Carolina haul are identical but the car mile revenue differs (as in the case of items Class Nos. 352 and 392, for example) the greater the car-mile earnings the lesser proportion is assigned to the State. In the case of these items Nos. 352 and 592, with identical hauls, item Class No. 352 shows car-mile earnings of 11.11c, and item Class 392 shows car-mile earnings of 18.60c, but the Railway's method assigns to the State 94.64% of the mileage prorate of the revenue of lower unit value and only 94.51% of that of the higher unit value. The same tendency may be marked in connection with items Class Nos. 90, 450 and 640, where the hauls are identical both in the State and in total.

In order to demonstrate that the results obtained by the Railway's method depend upon the peculiarities of the grouped shipments as they relate to the distances hauled, the revenues earned, etc., by the individual items comprised in the group to which the distribution method is applied, I have set up three other exhibits which collectively deal with these same 31 carload shipments, but each exhibit with only a part of them.

The next exhibit treats with the seven of these 31 shipments which individually have total hauls of less than

(28) 300 miles. They are the seven items which appear as items Class Nos. 90, 300, 420, 450, 550, 561, and 640 on Exhibit R-1, and are set up separately for no other reason than that they individually have total hauls of less than 300 miles. The average haul of the 31 carload shipments on Exhibit R-1 is 360.5 miles.

This second exhibit is on a single sheet which is captioned:

(MAKER'S EXHIBIT No. R-2)

Concerning the

Apportionment of Gross Revenue to Individual States Contrasting the Results Produced in a Particular Instance by the N. & W. Method and a Mileage Prorate—

Seven (7) of 31 Carloads Having Hauls of Less Than 300 Miles.

Exhibit No._____
Witness: Roberts, J. W.
(Maker's No. R-2)

Before the

HONORABLE SUPERIOR COURT OF WAKE COUNTY, NORTH CAROLINA

Concerning the

APPORTIONMENT OF GROSS REVENUE TO INDIVIDUAL STATES

CONTRASTING THE RESULTS PRODUCED IN A PARTICULAR INSTANCE BY THE N. & W. METHOD AND A MILEAGE PRORATE

SEVEN (7) OF 31 CARLOADS HAVING HAULS OF LESS THAN 300 MILES

I.C.C. Class	From	To	Gross Revenue	Miles Hauled	Revenue-Dollar Miles	Average Revenue Per Car Mile
a	c	d	e	f	g	h
90	Roxboro, N. C.	Bristol, Va.	$ 102.25	290	29,652.50	35.26c
300	Red Ash, Va.	Winston-Salem, N. C.	140.46	273	38,345.58	51.45c
420	Stoneville, N. C.	Glasgow, Va.	46.65	126	5,877.90	37.02c
450	Roxboro, N. C.	Norfolk, Va.	165.21	290	47,910.90	56.97c
550	Winston-Salem, N. C.	Pine Hall, N. C.	30.25	34	1,028.50	88.97c

561	Plasterco, Va.	Winston-Salem, N. C.	40.48	251	10,160.48	16.13c
640	Roxboro, N. C.	Norfolk, Va.	78.75	290	22,837.50	27.16c
A	TOTAL 7 CARS—DOLLAR MILES			Ayg. Haul 222	155,813.36	
B	PERCENT EACH STATE OF TOTAL FOR ALL STATES 100%					
C	REVENUE APPORTIONED TO STATES N. & W. METHOD		$ 604.05			
D	REVENUE APPORTIONED TO STATES—MILEAGE PRORATE		$ 604.05			
E	ERROR IN N. & W. METHOD—RATIO (%) N. & W. RESULTS OF MILEAGE PRORATE					

Results of Norfolk & Western Method of Apportionment

I.C.C. Class	Ohio		West Virginia		Virginia		Maryland		North Carolina	
	Mile	Dollar-Mile	Mile	Dollar-Mile	Mile	Dollar-Mile	Mile	Dollar-Mile	Mile	Dollar-Mile
a	i	j	k	l	m	n	o	p	q	r
90					279	28,527.75			11	1,124.75
300			24	3,371.04	202	28,372.92			47	6,601.62
420					119	5,551.35			7	326.55
450					279	46,093.59			11	1,817.31
550									34	1,028.50
561					204	8,257.92			47	1,902.56
640					279	21,971.25			11	866.25
A				3,371.04		138,774.78				13,667.54
B				2.16%		89.07%				8.77%
C				$ 13.06		$ 538.00				$ 52.99
D				$ 12.35		$ 513.97				$ 77.73
E				105.75%		104.68%				67.84%

426

90		$ 98.37	$ 3.88	$ 4.36	112.37%	$ 2.94	75.77%
300	$ 12.35	103.93	24.18	25.59	105.83%	17.24	71.30%
420		44.06	2.59	1.27	49.04%	85	32.82%
450		158.94	6.27	7.05	112.44%	4.74	75.60%
550			30.25	3.99	13.19%	2.69	8.89%
561		32.90	7.58	7.38	97.36%	4.97	65.57%
640		75.77	2.98	3.35	112.42%	2.26	75.84%
A							
B							
C.				$ 52.99	67.84%	$ 35.69	45.92%
D	$ 12.35	$ 513.97	$ 77.73				

For identification of I. C. C. commodity classifi tion, see exhibit R-1.

This exhibit, instead of showing the total revenue derived from each listed shipment opposite the miles hauled in each state, shows the dollar-miles instead. These dollar-miles are the product of the miles shown in Columns K, M, O and Q, times the revenue shown in Column E. This avoids the necessity of recapitulating the revenue by mileage blocks as per Lines (B) to (K) on Exhibit R-1. The change in form has no other effect and is made for reasons of brevity, since Exhibit R-1 shows the form in which the Railway sets up the monthly data.

From this Exhibit R-2 we may note that when these seven shipments are grouped for distribution, under the Railway's method the revenue apportioned to West Virginia is 105.75%, Virginia 104.68%, and North Carolina only 67.84% of the amounts assigned on a mileage prorate. The percentages are shown on Line (E) and the bases therefor on Lines (C) and (D). Within a fraction of one per cent the North Carolina apportionment by the Railway's method gives the State only two-thirds of the revenue to which it is entitled on a mileage prorate.

In Column X of this exhibit are shown the proportional amounts of revenue earned on each consignment which the Railway's method assigns to the State in contrast with the amounts assigned on a mileage prorate (29) which appear in the adjacent Column W to the left. In Column Y are the percentages showing the relation of amounts in Column X to those in Column W. In Column Z are shown the amounts assigned to North Carolina on each consignment when these seven cars were included in the total of 31 cars shown on Exhibit R-1, and in Column AA to the right are the accompanying percentages showing relation of the amounts in Column Z to mileage prorate shown in Column W. In the case of the first car listed on this Exhibit R-2, item Class 90,

which is cotton in bales, the mileage prorate revenue assigned North Carolina (Column W) is $3.88. When this car was included in the group of 31 on Exhibit R-1, the Railway's method gave the State $2.94, or 75.77% of its due, but when included in this group of 7 cars it gives the State $4.36, which is 112.37% of it sdue. Teh gives the State $4.36, which is 112.37% of its due. The single fact of modifying the content of the group therefore changes the amount assignable to the State by the Railway's method from 75.77% to 112.37%.

Other changes of like importance may be noted as regards individual shipments. It is significant, however, that when they were included in the group of 31 cars the revenue assigned to North Carolina on account of these seven consignments aggregated $35.69, as shown in Column Z, and on the mileage prorate basis, $77.73 (Column W), or 217.80% of the former. Grouped alone, the Railway's method assigns $52.99 to North Carolina, instead of $35.69 as formerly. The mileage prorate is 146.69% of the $52.99, and 217.80% of the $35.69. Distributing the revenue on these seven cars as a group assigns 148.48% more revenue to North Carolina than if they are included in the group of 31 cars, but still falls short 69.32% of the mileage prorate.

I have made another grouping of a part of the 31 typical carload movements shown on Exhibit R-1 in my study of the peculiarities of the Railway's method of apportioning revenue to states. It consists of but one sheet and is captioned:

(30) (MAKER'S EXHIBIT R-3)
Concerning the
Apportionment of Gross Revenue to Individual States
Contrasting the Results Produced in a Particular
Instance by the N. & W. Method and a
Mileage Prorate.
Seven (7) of 31 Carloads Having Hauls of More
Than 400 Miles.

Exhibit No._____
Witness: Roberts, J. W.
(Maker's No. R-3)

Before the

HONORABLE SUPERIOR COURT OF WAKE COUNTY, NORTH CAROLINA

Concerning the

APPORTIONMENT OF GROSS REVENUE TO INDIVIDUAL STATES

CONTRASTING THE RESULTS PRODUCED IN A PARTICULAR INSTANCE BY THE N. & W. METHOD AND A MILEAGE PRORATE

SEVEN (7) OF 31 CARLOADS HAVING HAULS OF MORE THAN 400 MILES

I.C.C. Class	From	To	Gross Revenue	Miles Hauled	Revenue-Dollar Miles	Average Revenue Per Car Mile
a	c	d	e	f	g	h
61	Bannon, Ohio	Madison, N. C.	$ 128.38	507	65,088.66	25.32c
110	Winston-Salem, N. C.	Columbus, Ohio	156.72	547	85,725.84	15.68c
143	Winston-Salem, N. C.	Columbus, Ohio	85.79	547	46,927.13	15.68c
513	Kenova, W. Va.	Winston-Salem, N. C.	99.02	408	40,400.16	24.27c
590	Valley Xing, O.	Winston-Salem, N. C.	102.94	537	55,278.78	19.17c

670	Winston-Salem, N. C...	Glen Jean, Ohio.....	45.40	475	21,565.00	9.56c
690	Winston-Salem, N. C...	Ivorydale, Ohio.....	167.12	554	92,584.48	30.17c
A	TOTAL 7 CARS—DOLLAR MILES.....			Avg. Haul 510.7	407,570.05	
B	PERCENT EACH STATE OF TOTAL FOR ALL STATES 100%.....					
C	REVENUE APPORTIONED TO STATES—N. & W. METHOD.....		$ 785.37			
D	REVENUE APPORTIONED TO STATES—MILEAGE PRORATE.....		$ 785.37			
E	ERROR IN N. & W. METHOD—RATIO (%) N. & W. RESULTS OF MILEAGE PRORATE...					

RESULTS OF NORFOLK & WESTERN METHOD OF APPORTIONMENT

I.C.C. Class	Ohio		West Virginia		Virginia		Maryland		North Carolina	
	Mile	Dollar-Mile	Mile	Dollar-Mile	Mile	Dollar-Mile	Mile	Dollar-Mile	Mile	Dollar-Mile
a	i	j	k	l	m	n	o	p	q	r
61	130	16,689.40	195	25,034.10	167	21,439.46			15	1,925.70
110	138	21,627.36	195	30,560.40	167	26,172.24			47	7,365.84
143	138	11,839.02	195	16,729.05	167	14,326.93			47	4,032.13
513			194	19,209.88	167	16,536.34			47	4,653.94
590	128	13,176.32	195	20,073.30	167	17,190.98			47	4,838.18
670	66	2,996.40	195	8,853.00	167	7,581.80			47	2,133.80
690	145	24,232.40	195	32,588.40	167	27,909.04			47	7,854.64
A		90,560.90		153,048.13		131,156.79				32,804.23
B		22.22%		37.55%		32.18%				8.05%

C	$ 174.51	$ 294.92	$ 252.73		$ 63.21
D	$ 168.70	$ 297.76	$ 255.19		$ 63.72
E	103.44%	98.98%	99.04%		99.20%

I.C.C. Class	Results of Mileage Prorate					North Carolina Proportion By N. & W. Method		North Carolina Proportion By N. & W. Method When Included In Group 31 Cars—See Exhibit R-1	
	Ohio	W. Va.	Virginia	Md.	N. C.	Amount	Percent of Mileage Prorate	Amount	Percent of Mileage Prorate
a	s	t	u	v	w	x	y	z	aa
61	$ 32.92	$ 49.38	$ 42.28		$ 3.80	$ 3.71	97.63%	$ 5.03	132.37%
110	39.54	55.87	47.85		13.46	14.19	105.42%	19.23	142.87%
143	21.64	30.58	26.20		7.37	7.77	105.43%	10.53	142.88%
513		47.08	40.53		11.41	8.97	78.62%	12.15	106.49%
590	24.54	37.38	32.01		9.01	9.32	103.44%	12.63	140.18%
670	6.31	18.64	15.96		4.49	4.11	91.54%	5.57	124.05%
690	43.75	58.83	50.36		14.18	15.14	106.77%	20.51	144.64%
A									
B									
C						$ 63.21	99.20%	$ 85.65	134.42%
D	$ 168.70	$ 297.76	$ 255.19		$ 63.72				

For identification of I. C. C. commodity classification, see exhibit R-1.

The items on this Exhibit R-3 are shown here merely because they have hauls in excess of 400 miles. The average haul of these seven carloads was 510.7 miles. The exhibit is prepared in the same style as preceding Exhibit R-2 and for the same reason.

From this Exhibit R-3 it may be noted that the grouping of these particular shipments having extraordinarily long hauls, produces radically different results under the Railway's method of apportionment than in the case of seven other carloads having an average haul of 222 miles, shown on Exhibit R-2. In the case of this exhibit, the results obtained from the Railway's method closely approximates a mileage prorate. The Ohio assignment is 103.44% of the mileage prorate, West Virginia 98.98%, Virginia 99.04%, and North Carolina 99.20%.

The revenue distributed to North Carolina for each of these seven cars; when they were contained in the group of 31 cars covered by Exhibit R-1, is shown in Column Z and the percentage relation thereof to the mileage prorate is shown in Column AA. In that case there was assigned to North Carolina $85.65, instead of $63.21, or 135.50% of the amount derived from their independent grouping.

It is to be observed that in this particular group of seven cars, the carload having the shortest haul (item, Class 513—which is iron and steel, rated 5th class in Official Territory) gives North Carolina only 78.62% of the mileage prorate (Column Y), although the revenue per car mile is 24.27c, or 154.8% of the 15.68c yield per car mile on items Class Nos. 110 and 143 immediately preceding, which, with the same haul in the State, gives the State 105.4 of the mileage prorate. This discrepancy indicates the effect of differences in the length of (31) haul upon the amount assigned to the State under the Railway's method.

Of the 31 carload movements shown on Exhibit R-1, seven of them, having hauls of less than 300 miles, are shown in a separate grouping on Exhibit R-2, and seven more having hauls exceeding 400 miles are shown on Exhibit R-3, both of which have been discussed. The remaining 17 of those cars are contained in a fourth group which is set up on another exhibit. They are the movements between 300 and 400 miles. This fourth exhibit comprises a single sheet and is captioned:

(MAKER'S EXHIBIT R-4)

Concerning the

Apportionment of Gross Revenue to Individual States

Contrasting the Results Produced in a Particular

Instance by the N. & W. Method and a

Mileage Prorate.

Seventeen (17) of 31 Carloads Having Hauls

Between 300 and 400 Miles.

Exhibit No.....
Witness: Roberts, J. W.
(Maker's No. R-4)

Before the
HONORABLE SUPERIOR COURT OF WAKE COUNTY, NORTH CAROLINA
Concerning the
APPORTIONMENT OF GROSS REVENUE TO INDIVIDUAL STATES
CONTRASTING THE RESULTS PRODUCED IN A PARTICULAR INSTANCE BY THE N. & W. METHOD AND A MILEAGE PRORATE
SEVENTEEN (17) OF 31 CARLOADS HAVING HAULS BETWEEN 300 & 400 MILES

I.C.C. Class	From	To	Gross Revenue	Miles Hauled	Revenue-Dollar Miles	Average Revenue Per Car Mile
a	c	d	e	f	g	h
10	Norton, Va.	Durham, N. C.	$ 156.00	380	59,280.00	41.05c
50	Shenandoah Jct., W.Va.	Winston-Salem, N. C.	34.35	338	11,610.30	10.16c
70	Hagerstown, Md.	Winston-Salem, N. C.	28.30	362	10,244.60	7.82c
80	Norton, Va.	Winston-Salem, N. C.	57.90	331	19,164.90	17.49c
120	Hagerstown, Md.	Winston-Salem, N. C.	58.30	362	21,104.60	16.10c
352	Winston-Salem, N. C.	Hagerstown, Md.	40.22	362	14,559.64	11.11c

392	Winston-Salem, N. C...	Hagerstown, Md.....	67.34	362	24,377.08	18.60c
401	Winston-Salem, N. C...	Hagerstown, Md.....	119.95	362	43,421.90	33.14c
430	Winston-Salem, N. C...	Hagerstown, Md.....	37.43	362	13,549.66	10.34c
431	Winston-Salem, N. C...	Hagerstown, Md.....	51.30	362	18,570.60	14.17c
432	Norton, Va.....	Winston-Salem, N. C.	117.12	331	38,766.72	35.38c
443	Winston-Salem, N. C...	Norfolk, Va.....	54.41	380	20,675.80	14.32c
530	Hagerstown, Md.....	Winston-Salem, N. C.	79.20	362	28,670.40	21.88c
540	Hagerstown, Md.....	Winston-Salem, N. C.	58.54	362	21,191.48	16.17c
560	Plasterco, Va.....	Durham, N. C.....	56.30	305	17,171.50	18.46c
611	Winston-Salem, N. C...	Hagerstown, Md.....	79.80	362	28,887.60	22.04c
701	Winston-Salem, N. C...	Hagerstown, Md.....	137.58	362	49,803.96	38.01c

A	TOTAL 17 CARS—DOLLAR MILES.....		Avg. Haul 355.7	441,050.74
B	PERCENT EACH STATE OF TOTAL FOR ALL STATES 100%.....			
C	REVENUE APPORTIONED TO STATES N. & W. METHOD.....	$ 1,234.04		
D	REVENUE APPORTIONED TO STATES—MILEAGE PRORATE.....	$ 1,234.04		
E	ERROR IN N. & W. METHOD—RATIO (%) N. & W. RESULTS OF MILEAGE PRORATE...			

RESULTS OF NORFOLK & WESTERN METHOD OF APPORTIONMENT

I.C.C. Class	Ohio		West Virginia		Virginia		Maryland		North Carolina	
	Mile	Dollar-Mile	Mile	Dollar-Mile	Mile	Dollar-Mile	Mile	Dollar-Mile	Mile	Dollar-Mile
a	i	j	k	l	m	n	o	p	q	r
10			24	3,744.00	314	48,984.00			42	6,552.00
50			13	446.55	278	9,549.30			47	1,614.45
70			20	566.00	278	7,867.40	17	481.10	47	1,330.10
80			24	1,389.60	260	15,054.00			47	2,721.30
120			20	1,166.00	278	16,207.40	17	991.10	47	2,740,10
352			20	804.40	278	11,181.16	17	683.74	47	1,890.34
392			20	1,346.80	278	18,720.52	17	1,144.78	47	3,164.98
401			20	2,399.00	278	33,346.10	17	2,039.15	47	5,637.65
430			20	748.60	278	10,405.54	17	636.31	47	1,759.21
431			20	1,026.00	278	14,261.40	17	872.10	47	2,411.10
432			24	2,810.88	260	30,451.20			47	5,504.64
443					333	18,118.53			47	2,557.27
530			20	1,584.00	278	22,017.60	17	1,346.40	47	3,722.49
540			20	1,170.80	278	16,274.12	17	995.18	47	2,751.38
560					258	14,525.40			47	2,646.10
611			20	1,596.00	278	22,184.40	17	1,356.60	47	3,750.60
701			20	2,751.60	278	38,247.24	17	2,338.86	47	6,466.26

A	23,550.23	347,395.31	12,885.32	57,219.88
B	5.34%	78.77%	2.92%	12.97%
C	$ 65.89	$ 972.00	$ 36.05	$ 160.10
D	$ 65.72	$ 972.02	$ 35.60	$ 160.70
E	100.26%	100.00+%	101.27%	99.63%

I.C.C. Class	Results of Mileage Prorate					North Carolina Proportion By N. & W. Method		North Carolina Proportion By N. & W. Method When Included In Group 31 Cars—See Exhibit R-1	
	Ohio	W. Va.	Virginia	Md.	N. C.	Amount	Percent of Mileage Prorate	Amount	Percent of Mileage Prorate
a	s	t	u	v	w	x	y	z	aa
10		$ 9.85	$ 128.90		$ 17.25	$ 18.33	106.26%	$ 17.11	99.19%
50		1.32	28.25		4.78	4.52	94.56%	4.22	88.28%
70		1.56	21.73	$ 1.33	3.68	3.72	101.09%	3.47	94.29%
80		4.20	45.48		8.22	7.61	92.58%	7.11	86.50%
120		3.22	44.77	2.74	7.57	7.67	101.32%	7.15	94.45%
352		2.22	30.89	1.89	5.22	5.29	101.34%	4.94	94.64%
392		3.72	51.72	3.16	8.74	8.86	101.37%	8.26	94.51%
401		6.62	92.12	5.63	15.58	15.77	101.22%	14.72	94.28%
430		2.07	28.74	1.76	4.86	4.92	101.23%	4.59	94.44%
431		2.83	39.40	2.41	6.66	6.75	101.35%	6.30	94.59%
432		8.49	92.00		16.63	15.40	92.60%	14.37	86.41%
443			47.68		6.73	7.16	106.39%	6.68	99.26%

530	4.38	60.82	3.72	10.28	10.42	101.36%	9.72	94.55%
540	3.23	44.96	2.75	7.60	7.70	101.32%	7.18	94.47%
560		47.62		8.68	7.40	85.25%	6.91	79.61%
611	4.41	61.28	3.75	10.36	10.49	101.26%	9.79	94.50%
701	7.60	105.66	6.46	17.86	18.09	101.29%	16.88	94.51%
A								
B								
C					$ 160.10	99.63%	$ 149.40	92.97%
D	$ 65.72	$ 972.02	$ 35.60	$ 160.70				

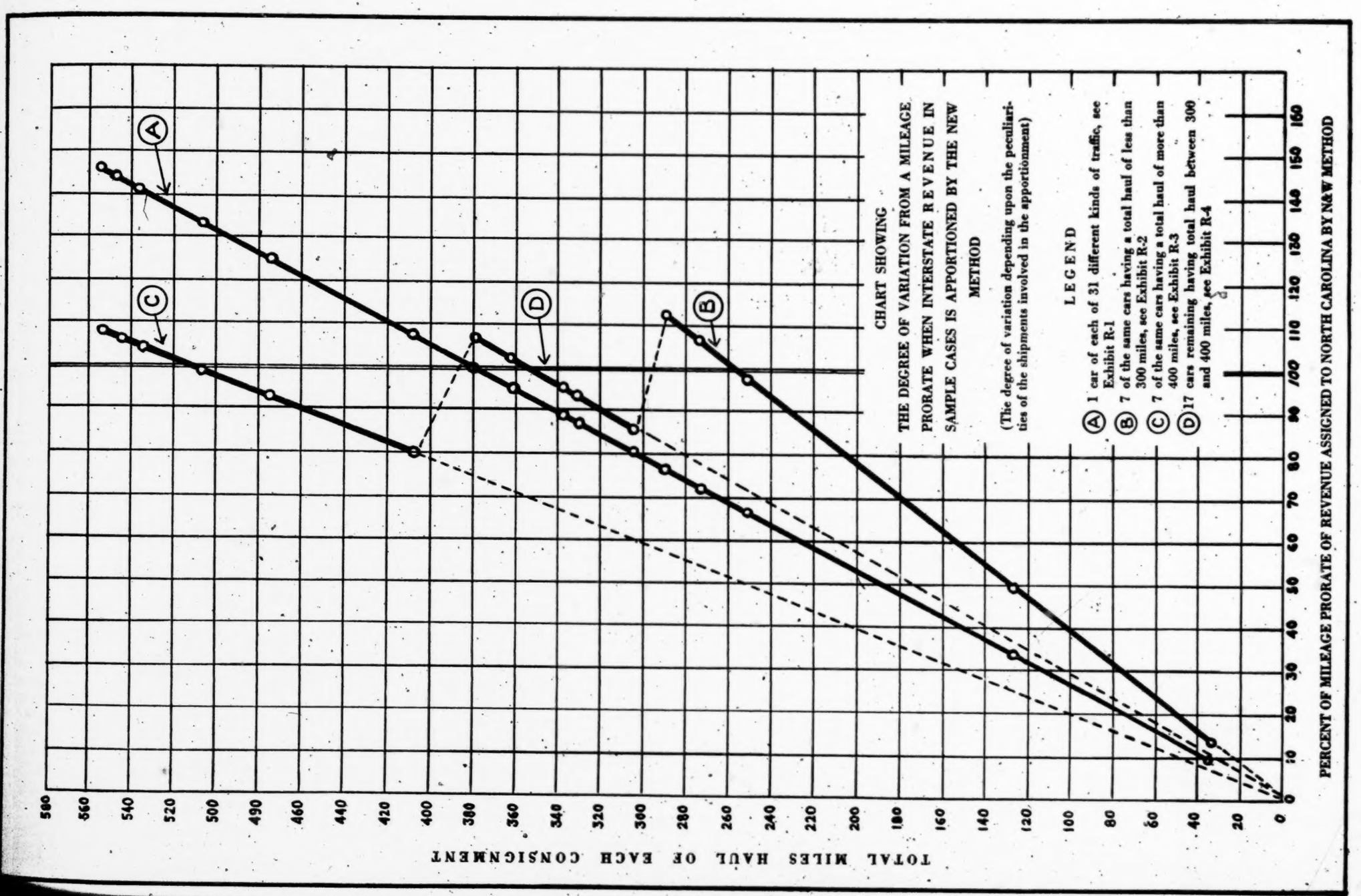
For the 17 movements shown on this Exhibit R-4 the average haul is 355.7 miles. One car moved 305 miles; two cars, 331 miles; 1 car 338 miles; 2 cars 380 miles; and 11 cars 362 miles each. The haul for the proponderant number of items in the group is less than 7 miles greater than the average haul for all cars; and all of the 17 cars save one moved 47 miles in North Carolina. The general similarity of the hauls comprised in this group tends to make them eligible for grouping for the purpose of distributing revenue. Failure to attain the result produced by a milage prorate is caused by the relatively slight discrepancies in the hauls and the differences in the revenue yield per car-mile.

The mileage prorate to the State for the 17 cars is $160.70; the State's proportion under the Railway's method is $160.10, or 99.63% of the mileage prorate. When these 17 cars were treated as a part of the group of 31 shown on Exhibit R-1, the revenue assigned to North Carolina was $149.40, as shown in Column Z, so that under the Railway's method the grouping of these cars separately from the 14 other cars increases the revenue apportioned to North Carolina 7.16%. For other (32) states, as shown on Line (E), this grouping assigns to West Virginia 100.26% of the mileage prorate, to Virginia 100.00% plus; to Maryland 101.27%, and to North Carolina 99.63%.

Under the circumstances set forth on this exhibit, the Railway's method gives the State the lowest per cent of the mileage prorate on the shipment having the shortest haul, to-wit: Item Class No. 560, with a haul of 305 miles, whereas in the cases of cars with the longest hauls, to-wit: Class Nos. 10 and 443, with hauls of 380 miles each, North Carolina is given 106% plus of the mileage prorate. In the case of item Class No. 10, the car-mile revenue is 41.05c, and for 42/380ths of the

EXHIBIT NO. _____
WITNESS Roberts, J. W.

(Maker's Exhibit No. R-5)



haul the Railway's method gives the State only 106.26% of the mileage prorate, but for item Class No. 443, with car-mile revenue of only 14.32c, for 47/380ths of the haul it gives North Carolina 106.39% of the mileage prorate. Certainly no confidence can be placed in a method of apportionment producing results so contrary and illogical. This exhibit demonstrates that when the Railway's method hits upon the correct result it is purely accidental due to the relation of grouped items to each other and in no way to virtue inherent in the method.

My next exhibit is a chart by means of which I have endeavored to epitomize in a graphical way the erratic and widely divergent results obtained by the Railway's method of apportioning revenue to states, depending upon the contents of the group totals to which the method is applied, as illustrated in detail on my Exhibits R-1 to R-4 inclusive, and the discussion of them.

The chart in question is identified, and the description appearing thereon, is as follows:

(MAKER'S EXHIBIT R-5)

Chart Showing

The Degree of Variation From a Mileage Prorate When Interstate Revenue in Sample Cases is Apportioned By the N. & W. Method

(The degree of variation depending upon the peculiarities of the shipments involved in the apportionment.)

The abscissa of this chart is the per cent of the mileage (33) prorate of revenue assigned to North Carolina by the N. & W. method, and the ordinate thereof is the total miles of haul of the consignment. The points on the scale to which the chart is drawn are the length of haul, and the percentage appearing in the last column to the right on each of the four exhibits, R-1 to R-4, inclusive, which is the per cent the distributed revenue is of the mileage prorate. The red line drawn vertically through the center of the chart represents 100% or results equivalent to a mileage prorate. The vertical blue lines of the grid on each side of the red 100% line are percentage lines ten points apart, and the horizontal blue lines of the grid represent miles of haul, the interval between the lines representing 20 miles. The solid red, blue, green, and purple lines running diagonally across the grid are the lines of variance plotted from the percentages and the miles of haul on the respective exhibits as explained in the legend on the charts. The red line is plotted from Exhibit R-1, the purple line to the lower right of the red one is plotted from Exhibit R-2; the blue line to the upper left of the red one is plotted from Exhibit R-3; and the solid green line in the middle center of the chart to the right of the red line is plotted from Exhibit R-4. The dotted green lines produced to the "zero-zero" point merely accentuate the relationship of all of the plotted lines, while the dotted green lines connecting the plotted solid lines indicate that the blue, solid green, and purple plotted lines collectively represent the same total represented by the red line, and are, independent treatments of parts thereof. The circles on the plotted lines indicate the plotted points, which are to the nearest point of the percentage and the nearest whole mile of the haul. Graph paper having divisions of 20 to the inch was used in preparing the master copy of the chart from which this

copy was made. In some instances, more than one item in the exhibit had the same percentage and the same length of haul, so there are fewer circles on the line than there are items on the exhibit which is plotted.

(34) One of the interesting features of this exhibit is that the plotted lines are straight, rather than curved, and that the degree of their inclination is regulated by the average haul of the shipments included in the group to which the Railway's apportionment method is applied. The longer the haul the steeper the line; the shorter the haul the less precipitous the line, as note the blue line indicating hauls of over 400 miles, and the purple line indicating hauls of less than 300 miles, which are the two extremes. Under the Railway's method, shipments in these respective illustrative groups having hauls of the length indicated at the points where the plotted lines cross the red 100% line, would yield the same revenue as a mileage prorate; those having a longer haul would receive more; and those having a shorter haul would receive less, and in the degree indicated by the readings on this chart.

Another interesting feature of the chart is its disclosure that the Railway's method of apportionment does not accredit the same revenue to a state as derived from a mileage prorate when the actual haul of a shipment is the same as the average haul for all shipments comprised in the group being distributed under the method. On Exhibit R-1, depicted by the red plotted line, the average haul is 360.5, but in its case the Railway's method compensates at between 380 and 385 miles of haul; on Exhibit R-2 the average haul is 222 miles, but the compensation is on a haul a little less than 260 miles, the 222-mile haul yielding about 85% of the mileage prorate; on Exhibit R-3 the average haul is 510.7 miles, and in that case the compensation point is at about 517

miles, the 510.7 mile haul yielding around 98% of the mileage prorate, while on Exhibit R-4 where the average haul is 355.7 miles the compensating point is nearby, but at a slightly greater mileage. This phenomena is attributable to the influence of the difference in the unit revenues and the ratios of the hauls in the State to the total haul, and furnishes proof that the Railway's method (35) contains infirmities which insure the utter unreliability of its results.

Observe the manner in which the plotted lines on this chart radiate from a common point. Remember that the red plotted line (Exhibit R-1) represents the results gotten from treating all of the 31 cars in one group for distribution by the Railway's method. Then view the other three plotted lines as one, along the route of the connecting dotted green lines. In both instances we are dealing with precisely the same revenue and with precisely the same hauls both in and outside of North Carolina. This conception of the chart shows the manner in which the Railway's method distorts facts by reason of the fallacy upon which it is premised. Then bear in mind that the revenue attributed by the Railway to North Carolina, in sums previously mentioned, for the respective years 1927, 1928 and 1929 were arrived at by applying this same method to different groups of shipments twelve times during each of the three years, because the revenue distribution is made by the Railway monthly. Bear in mind, also, that the traffic volume varies from month to month, from season to season, and from year to year, not only as to volume expressed in number of carloads handled or in net-ton miles transported, but in length of hauls, kind of traffic, revenue yield per car-mile, et cetera, but most importantly in length of haul regardless of whether the traffic touches North Carolina territory or not, because the Railway's method does not undertake to dis-

tribute separately the revenue derived only from traffic touching North Carolina. It deals, monthly, with the sum total of all revenue derived from interstate freight traffic on the entire system. The preponderance of the Railway's freight traffic is coal. During that part of the year when navigation is open on the Great Lakes the major part of the Railway's freight movement consists of so-called Lake Cargo coal, which does not touch North Carolina, but originates north and west of that state and moves away in that direction. In 1929 the (36) Railway's average haul on Lake Cargo coal was approximately 269 miles and the revenue per ton-mile was c0.5125.

During another season of each year there is an immense movement of coal over the Railway's line to tidewater. Its average haul in January, 1929, was 406.69, which approximates the yearly average, or 151% of that of the Lake Cargo tonnage. The revenue averaged c0.5498 per net ton-mile, or 107% of Lake Cargo coal. These marked fluctuations in a large proportion of the Railway's system traffic react upon the monthly distribution of revenue to North Carolina under the Railway's method, and regardless of changes that may or may not occur in the consist, average haul and total volume of business actually handled in the State, these fluctuations in traffic on the remainder of the system affect the amount of revenue which the Railway assigns to the State as compared with the "equal mileage prorate" which the statute contemplates, and which, unquestionably, the Railway's representatives believe they have used. I use the word unquestionably because it stands to reason that gentlemen of the experience and perspicacity of the Railway's witnesses would not assert that the statutory formula makes improper and unfair use of the system operating ratio, and would not seek to

prove it by comparing so-called actual operating expenses in the State with the equivalent of the operating ratio, unless they did assume the correctness of the gross revenues to which the ratios were applied to produce the amounts complained of.

I have previously referred to the fact that the Railway includes, in the monthly group, the total of which is distributes according to its method, all items of revenue earned on interstate traffic even though the earnings may actually have been intrastate to North Carolina. Because of the vagaries of the Railway's method this may lead either to an under-statement of the revenues assignable to the State pursuant to the statutory formula, or an over-statement, but inasmuch as the Railway's total haul on such traffic would necessarily be short (the maximum haul being the mileage in the State of the branch (37) over which the traffic moved) it is most likely that the result is to understate the assignment to North Carolina, and probably substantially so. For that reason it would be of interest to know how much such revenue amounts to during each of the three years to point. That information is not accessible, however, unless all consignments touching the State during the entire period be individually examined. That would be a stupendous task which I have not undertaken. However, all the details of the traffic touching North Carolina during the months of October, 1927, 1928, and 1929, have been examined, and for that month, the information was recorded on the work sheets in such a way as to identify interstate revenue earned by the Railway solely within the State. The Railway's representatives have heretofore testified that the experience of the year 1929 was typical of the experience of 1927 and 1928, so far as it affects North Carolina, and the Railway's accounting officer, Mr. Gooch Vaughan, has said that in his opinion the month

of October was fairly representative of other months in the year. It is therefore somewhat illuminating to say that for the month of October, 1929, for example, the interstate revenue earned solely within the boundaries of North Carolina amounted to $5,129.88. The revenue derived from North Carolina intrastate traffic in that month was $5,571.02. Multiplying the first mentioned figure by 12 we get $61,558.56 as representing the probable total locally earned interstate revenue for the year. Multilpying the second amount by 12 we get $66,852.24 to represent the year's intrastate revenue, which actually was $58,437.24, or only 87.41% of 12 times the October earnings. If this relationship between intrastate and locally earned interstate revenue held throughout the year (as to which we have no evidence), the interstate revenue for 1929 which should have been assigned wholly to North Carolina would be (87.41% of $61,558.56 or) $53,808.34. Instead of the Railway giving the State (38) credit directly for some such amount, however, it was unnecessarily mixed up in the prorating process. If circumstances attending the 36 monthly set-ups to which the Railway's method was applied during the years 1927, 1928, and 1929, produced distortions commensurate with the one illustrated on Exhibit R-1 (item I. C. C. Class No. 550) when only 8.89% of revenue earned in the State on an interstate shipment of brick was assigned to the State, then but a relatively small part of such revenue may have been accredited to the State, although it seems almost equal in importance to the intrastate revenue all of which was accredited to the State.

In order to determine that the Railway's apportionment method which I have described and illustrated actually produced a wrong result under the particular circumstances of its application, and in order to determine the variance from a mileage prorate under such circum-

stances, an examination was made of the freight revenue accounts of the Railway for the month of October during each of the years 1927, 1928 and 1929, under my supervision and direction. A further study was made of carload shipments only for the month of January, 1929. This was made possible by the courtesy of the Railway's officials, and the work was done in its general offices at Roanoke, Virginia, during November and December, 1931.

From the same records on which the Railway spread the data which underlie its apportionment of revenues to states, each and every item of revenue a part of which was assigned to North Carolina was drawn off and apportion to the State on a mileage prorate—that kind of a prorate which the statutory formula refers to as an "equal mileage prorate." This examination of the monthly details disclosed that in many instances the State was not credited with revenue to which it was entitled under the Railway's own method because of clerical errors in posting the data. Items which should have been posted to North Carolina were erroneously posted in an (39) other State's column, and in a great many other instances, North Carolina was given no credit on shipments which moved to or from Winston-Salem, or Durham, North Carolina, because the mileage haul was not divided but credited wholly to another state, which was usually Virginia. Errors of this sort were not corrected because the purpose of the study was to ascertain the direction and the degree of error in the Railway's distribution formula, and in order to do that it was necessary to deal with the same items and basic amounts.

The results of this study, as they affect the revenue assignment to North Carolina, are set forth on an exhibit consisting of one sheet which bears the following description:

(MAKER'S EXHIBIT No. R-6)

Concerning the

Apportionment of Gross Revenue to Individual States

Contrasting the Amounts of Revenue Assigned to North Carolina for the Months of October, 1927, October, 1928, and October, 1929, by the N. & W. Method and a Mileage Prorate, Respectively.

Before the

HONORABLE SUPERIOR COURT OF WAKE COUNTY, NORTH CAROLINA

APPORTIONMENT OF GROSS REVENUE TO INDIVIDUAL STATES

CONTRASTING THE AMOUNTS OF REVENUE ASSIGNED TO NORTH CAROLINA FOR THE MONTHS OF OCTOBER, 1927, OCTOBER, 1928, AND OCTOBER, 1929 BY THE N. & W. METHOD AND A MILEAGE PRORATE, RESPECTIVELY.

Exhibit No. ----------
Witness: Roberts, J. W.
(Maker's Exhibit No. R-6)

Month of October, 1927
Gross Revenue Earned Partly In North Carolina

Line	Item	Total	North Carolina's Proportion	Percent of Total
	a	b	c	d
	Mileage Prorate Basis:			
1	Merchandise--Intrastate Traffic----------	$ 7,179.22	$ 7,179.22	100.00%

2		Locally transported Interstate Traffic	5,154.58	5,154.58	
3		Other Interstate Traffic	611,043.54	86,034.81	
4	Coal	Interstate Traffic	234,871.76	38,240.18	15.21%
5	Coke	Interstate Traffic	33.53	4.82	
6		Total	$ 858,282.63	$ 136,613.61	
	N. & W. Distribution Basis:				
7	Merchandse	Intrastate Traffic (See Note 1)	$ 7,138.81	$ 7,138.81	100.00%
8		Interstate Traffic	614,282.09		
9	Coal	Interstate Traffic	233,518.64	111,541.69	13.16%
10	Coke	Interstate Traffic	33.53		
11		Total	$ 854,973.07	$ 118,680.50	
12	Difference, Mileage Prorate in excess		$ 3,309.56	$ 17,933.11	
13	Ratio (%) N. & W. Basis To Mileage Prorate (11 ÷ 6)			86.87%	
14	Percentage Applicable To Revenue Assigned North Carolina By N. & W. Method To Bring To Mileage Prorate Basis			115.1104%	

Exhibit No. .....
Witness: Roberts, J. W.
(Maker's Exhibit No. R-6)

MONTH OF OCTOBER, 1928
GROSS REVENUE EARNED PARTLY IN NORTH CAROLINA

Line	Item		Total	North Carolina's Proportion	Percent of Total
	a		e	f	g
	MILEAGE PRORATE BASIS:				
1	Merchandise	Intrastate Traffic	$ 7,802.67	$ 7,802.67	100.00%
2		Locally transported Interstate Traffic	4,261.12	4,261.12	
3		Other Interstate Traffic	628,699.78	89,452.17	
4	Coal	Interstate Traffic	202,343.89	32,684.82	15.13%
5	Coke	Interstate Traffic	95.79	17.74	
6		Total	$ 843,203.25	$ 134,218.52	

	N. & W. Distribution Basis:				
7	Merchandise	Intrastate Traffic (See Note 1)	$ 7,716.20	$ 7,716.20	100.00%
8		Interstate Traffic	633,023.15		
9	Coal	Interstate Traffic	201,867.37	111,704.50	13.78%
10	Coke	Interstate Traffic	46.19		
11		Total	$ 842,652.91	119,420.70	
12	Difference, Mileage Prorate in excess		$ 550.34	$ 14,797.82	
13	Ratio (%) N. & W. Basis To Mileage Prorate (11 ÷ 6)			88.98%	
14	Percentage Applicable To Revenue Assigned North Carolina By N. & W. Method To Bring To Mileage Prorate Basis			112.3913%	

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Exhibit No. _____
Witness: Roberts, J. W.
(Maker's Exhibit No. R-6)

MONTH OF OCTOBER, 1929
GROSS REVENUE EARNED PARTLY IN NORTH CAROLINA

Line	Item	Total	North Carolina's Proportion	Percent of Total
	a	h	i	j
	MILEAGE PRORATE BASIS:			
1	Merchandise—Intrastate Traffic	$ 5,571.02	$ 5,571.02	100.00%
2	Locally transported Interstate Traffic	5,129.88	5,129.88	
3	Other Interstate Traffic	538,794.58	75,765.83	
4	Coal—Interstate Traffic	155,910.50	24,838.78	15.11%
5	Coke—Interstate Traffic			
6	Total	$ 705,405.98	$ 111,305.51	

	N. & W. Distribution Basis:				
7	Merchandise	Intrastate Traffic (See Note 1)	$ 5,540.98	$ 5,540.98	100.00%
8		Interstate Traffic	543,472.80		
9	Coal	Interstate Traffic	155,939.77	96,538.14	13.80%
10	Coke	Interstate Traffic			
11		Total	$ 704,953.55	$ 102,079.12	
12	Difference, Mileage Prorate in excess		$ 452.43	$ 9,226.39	
13	Ratio (%) N. & W. Basis To Mileage Prorate (11 ÷ 6)			91.71%	
14	Percentage Applicable To Revenue Assigned North Carolina By N. & W. Method To Bring To Mileage Prorate Basis			109.0385%	

NOTE 1: When the North Carolina intrastate revenue shown on summary of Statistician's Form No. 37 differed from the amount reported to the Commissioner of Revenue of North Carolina, the latter figures are used.

SOURCE OF BASIC INFORMATION: Norfolk & Western Railway Company's records, Statistician's Form No. 37

This exhibit is comprised of two sections, the upper section, consisting of line numbers 1 to 6 inclusive, relating to the mileage prorate results, and the lower section, consisting of lines 7 to 14, relating to the Railway's apportionment, and a comparison thereof with the mileage prorate.

In Columns B, E and H are shown the total amounts of freight revenue dealt with which are carried in I. C. C. Acct. 101—Freight. It will be noted from Line 12, Columns B, E, and H, that for the month of October, 1927, the revenue apportioned here on the mileage prorate basis is $3,309.57 in excess of that employed by the N. & W. method; in October, 1928, the excess is $550.34, and in October, 1929, it is $452.43. The apparent reason for these differences is that the Railway does not maintain a check on the total revenue touching each state during each month for the sake of balancing its distributions, and these differences are occasioned by errors (40) in punching cards, in loss of cards before the results are summarized or in other clerical errors. The basic figures used in the mileage prorate were taken from the same record from which the Railway punches the cards used in connection with its distribution. The Railway's results were taken from its Summary on form 37. When these discrepancies were discovered the figures drawn off for the mileage prorate were verified. The differences, however, are unimportant so far as the purpose of this exhibit is concerned.

It may be noted from Columns D, G, and J, Line 4, that of the interstate freight revenue touching North Carolina the mileage prorate assigns to the State for October, 1927, 1928, and 1929, 15.21%, 15.13%, and 15.11%, respectively, in contrast with 13.16%, 13.78%, and 13.80% appearing on Line 9, assigned by the Railway's method. As shown on Lines 6 and 11, the total

revenue touching North Carolina during the month of October was less in 1928 than in 1927, and less in 1929 than in 1928, and the State's participation therein, as reflected by a mileage prorate, also declined. According to the results of the Railway's method, however, the State's participation in a declining volume of gross revenue increased each period, as indicated by the percentages on Columns D, G, and J, on Line 9. The reverse tendency which the Railway's results reflect are manifestly occasioned by the increased amount of interstate freight revenue earned on the system and not in the State during October of these years, which shows a progressive increase as follows:

October, 1927	$ 8,283,082.82
October, 1928	9,427,884.81
October, 1929	10,099,742.64

Line 14 of this exhibit shows the percentages applicable to the freight revenue, both intrastate and interstate, assigned to North Carolina by the Railway's method in order to bring the amounts up to the equivalent of an "equal mileage prorate." The assignment to the State for October, 1927, is 86.87% of the mileage prorate and the equation factor is 115.1104%; for October, 1928, the assignment is 88.98% of the mileage pro-
(41) rate, and the equation factor is 112.3913%; and for October, 1929, the assignment is 91.71% of a mileage prorate and the equation factor is 109.0385%. In money, the understatement of North Carolina's proportion on a mileage prorate, as shown on Line 12 in Columns C, F, and I for the month of October of the three years is $17,933.11, $14,797.82, and $9,226.39, respectively.

The question now arises as to whether the findings for the month of October may be assumed to indicate in a reliable way the degree in which revenue assigned to

North Carolina by the Railway's method is understated (as compared with a mileage prorate) for the other eleven months of the three years, 1927, 1928, and 1929. It is my opinion that these figures have significance only with respect to the period to which they actually appertain, and that they afford no acceptable measure of the degree of error in the Railway's method with respect to any other month during the three-year period, or any other period.

During each of the 36 months of the three-year period there is a change in the relationship of the total ton-miles of traffic transported on the system to the ton-miles concurrently transported in North Carolina, and as we may notice from the trend of the figures for the month of October of these three years, the Railway's method tends to give more credit to North Carolina than due on a mileage prorate when business on the entire line of road increases out of proportion to North Carolina traffic, and, conversely, would understate the State's proportion when the reverse is true.

There are also differences occurring from month to month in the relative yield of revenue on a car mile or net ton mile basis on traffic handled through North Carolina compared with traffic handled on the remainder of the system. These differences are due to discrepancies in the average haul, or to the class of traffic moving and the charges assessed for its transportation, or both. The error in the amount of revenue assigned to North Carolina by the Railway's method depends upon the combination of these circumstances. Since the circumstances vary (42) with each month for which total revenues are distributed, there is no possible way to predict the effect they may have upon revenue assigned to North Carolina by the Railway's method as compared with the mileage prorate The only manner in which the actual degree of error in

the Railway's figures can be arrived at is to redistribute each month's revenue on an actual mileage prorate basis. That is a task of such large proportions, entailing so much time and expense, that I have not undertaken it. There is some question, as a matter of fact, whether it is feasible to do it at this time because of destruction of a part of the Railway's records for some of the years in question. If the punch cards originally used by the Railway were available the task of making a correct distribution of each month's revenue would be greatly reduced in its proportions. Some of them are not available.

However, from the showings of this exhibit and what has been said heretofore, I may assert with complete confidence that the revenues assigned by the Railway to the State of North Carolina for the month of October in the years 1927, 1928 and 1929, respectively, are understated in the amounts and in the degree shown on this Exhibit R-6. With no less confidence I may assert that in some unpredictable degree and in some unkown amount, the revenue assigned to the State of North Carolina for the other months of these three years is not, due to the fallacy which underlies the Railway's method of apportionment, the equivalent of revenue which would be assigned to the State pursuant to the statutory formula, save in case of a most remarkable coincidence.

The yearly gross revenues which the Railway has assigned to the State are wrong in amounts. Applying the system operating ratios to these incorrect bases to produce operating expense factors for comparative purposes must necessarily produce wrong expense factors. To subtract expense factors so determined from so-called actual expenses in the State, asserting that the difference represents an overstatement of "net revenue," is manifestly wrong. Yet the contention of the Railway rests (43) upon that procedure. No proof can be adduced by

such a process to show that the taxable income ascertained according to the statutory formula is excessive, and submits to taxation income not earned within the State. This harks back to what I have previously said to the effect that the Railway's claims are inconclusively established and futilely asserted, since they deal only with the operating ratio and but one side (operating expenses) of the equation which it expresses. It is just as important to establish the actual amounts of gross revenue as it is to establish the actual amounts of operating expenses if it is to be proved that the system operating ratio is improperly used.

The Relationship of Rates to Operating Expenses

There is another aspect of this matter which the Railway's representatives have not taken into consideration. It has a more important bearing upon the propriety of using the system operating ratio to determine taxable income in North Carolina than the probable degree of error in the gross revenue which the Railway's method apportions to the State.

This phase of the subject may be approached by saying that the Net Revenue which may with propriety be included in Taxable Income is the difference between gross revenues actually earned, and the actual expenses which earned them.

Now, if freight rates which produce gross revenue were assessed on an absolutely uniform basis per unit of service, as for example 1c per net ton-mile, and recognized no differentiations whatever on account of route of movement, length of haul, class of traffic or quality of service, in that event gross revenue apportioned on a miles-hauled basis would unquestionably represent the gross revenue earned in the State to which assigned, whatever might be the relation of the actual expense to

the revenue, or the expense levels obtaining on other parts of the railroad. In such a case, comparison of a State's actual expenses with a mileage prorate of gross revenue would not be illogical, or incompatible with attendant circumstances. The Railway's contention here would fit into such a situation.

(44) However, that is not the situation existing in this case. The revenues accruing from interstate traffic which is transported partly in and partly outside the State, and from intrastate as well as interstate traffic which is transported wholly within the State, do not accrue from rates fixed on a uniform and inflexible basis with total disregard of the expense incident to the service performed. In fact, the contrary is true. Freight rates lawfully assessed by the Railway for transporting freight over the branch lines serving North Carolina are on a much higher level than rates assessed for the same quantity and quality of service on other portions of its system. This was true for the years 1927, 1928, and 1929, and for years prior and subsequent to that period. For that reason, when the actual expense of operations on the branch lines, and within the boundaries of North Carolina, are considered, there must be considered coincidentally the actual gross revenue which such expenses produce, because actual expenses on the one hand, and a mileage prorate of revenue on the other hand, are wholly incompatible and their relationship is irrelevant.)

(If a test is to be made of the reasonableness of the statutory formula's use of the system operating ratio, that ratio must be applied to Actual Gross Revenue (not a mileage prorate of system gross revenue) to produce an operating expense factor which is comparable with Actual Operating Expenses in the State. Our ratio would then be,

Actual Expense : Actual Gross Revenue
The Railway's witness would use the ratio,
Actual Expense : Averaged Gross Revenue
Whereas, the statutory formula employes the ratio,
Averaged Expense : Averaged Gross Revenue

The Railway's witnesses take the position that the Net Income properly includable in Taxable Income is the difference between gross revenues assigned to the State on a mileage prorate basis and Actual expenses incurred (45) in the State. In other words, the cost of earning a dollar of gross revenue controls their assignment of expenses to the State, but the number of dollars so earned is not the consideration controlling their assignment of gross revenue to the State. They apparently lose sight of the fact that the freight rates which produce gross revenues earned on the branch lines entering North Carolina have always been adjusted to respect the higher operating costs on those branches, as compared with the remainder of the system on which a lower level of rates apply for service of like quantity and quality.

I have examined the exhibits introduced here on the Railway's behalf by its witnesses, Messrs. Vaughan and Konrad. They do not purport to reflect the actual expense of conducting operations in North Carolina, but merely an approximation thereof. I think their figures may be accepted at face value without being seriously misleading as respects the relation of operating expenses on the branch lines to those on the main lines of the system. On a unit basis, the branch line expenses are unquestionable the higher, principally due to relatively lighter traffic density, and operating obstacles in the way of grades and curves, which are excessive on the branches as compared with the balance of the system. From this statement, however, it it not to be understood that I endorse and approve the figures which are contained in

the Railway's exhibits, or that I draw the same conclusions therefrom which are expressed by Mr. Vaughan and Mr. Konrad. Concerning such conclusions, I shall have something to say later on.

It should be understood that a difference in operating expenses does not connote a like difference in the total cost of transportation on a unit basis. Positively a difference in expenses does not imply a like difference in the margin of profit in the gross revenue. There are other factors comprehended by rates which produce gross revenue, such as rents, taxes, and return on investment (46) employed, which have a weight generally equal to about 50% of Operating Expenses. Oftentimes these other elements of cost are sufficiently low, when expressed on a unit basis, to offset an excess in operating expenses. There are also the important factors of differences in length of haul, and in the number of terminal and interchange services required by the traffic handled, etc., which affect total costs stated on a comparable basis, and sometimes they conjoin to reverse relationships which are suggested by a comparison of operating expenses alone.

The point I seek to make is that freight rates, for example, are, theoretically, sufficiently high to produce gross revenue which will be ample to cover not only the expenses of providing the service, but also rents paid for property used in rendering the service, taxes which may be assessed against the property, and a fair return upon the investment employed. The relative levels of freight rates over North Carolina branches and the remainder of the system should therefore be compared, not with operating expenses only on the respective sections of the road, but with the total costs of freight operations, including expenses, return on investment, and every other element of the operating cost. No such comparison is made by Messrs. Konrad and Vaughan, and the data

contained in their exhibits are insufficient to enable me to make such a comparison, nor are the necessary facts available outside of the Railway's private records.

It is of interest to note, however, that the sound value of the Railway's fixed property in North Carolina was $3,141,213, and outside of the State $177,073,980 as found by the I. C. C. as at June 30, 1916. Since that date the Railway has spent $106,084,263 for fixed improvement and extensions, of which about $1,500,000 was spent in the State. On a road-mile basis the value of fixed property outside the State is approximately four times that within the State. This means that, despite lighter traffic density on the branches, a greater part of the gross revenue dollar earned on the branches is available to cover operating expenses, rents, taxes, etc., than outside the State, in the ratio of approximately 4 to 3.

(47) Before undertaking to show that the revenue earned on the Railway's branches extending into North Carolina do enjoy freight rates which are on a relatively higher level than those obtaining on other parts of the system, it is advisable, as a preliminary matter, to explain certain related matters, in order to make the situation clear.

The geographical location of the Railway's line of road places it in a unique position with respect to freight rates. Its situation is unique in the particular that the Railway's main line from Kenova, West Virginia, to Norfolk, Virginia, a distance of approximately 544 miles, constitutes the southernmost line in Official Classification Territory. Southern Classification Territory lies immediately south of, but does not include the Railway's main line from Kenova to Norfolk. N. & W. main lines extending northwesterly from Kenova to Portsmouth, Ohio, and thence westerly to Cincinnati, Ohio, and northwardly

to Columbus, Ohio, are also situate in Official Territory, and that is likewise true of the line extending from Roanoke, Virginia, to Hagerstown, Maryland. The branch lines extending southward from Roanoke, Virginia, to Winston-Salem, North Carolina, and from Lynchburg, Virginia, to Durham, North Carolina, are respected as being in Southern Classification Territory. There seems to be some confusion regarding the territorial classification of the Railway's branch line mileage lying south of its main line and west of the Winston-Salem branch, although it is my understanding that, speaking generally, that mileage is in practice regarded as being in Southern Territory. The classification of these branches has but little significance in the instant case, however, because the examination of the movements of traffic touching North Carolina indicated that but little of it traverses that part of the system.

With respect to all traffic moving under so-called Class Rates, the transportation charges are assessed on the basis of rates which are determined by the rating of the (48) commodity transported. There is one system of ratings in effect in Official Territory, of which the Railway's main lines are a part, and another in Southern Territory which definitely includes the branches serving Winston-Salem and Durham, North Carolina. The ratings in the two territories do not parallel and it is an impracticable matter to determine exactly the effect which their differences have upon gross revenues. In the Southern Class Rate Investigation which was decided by the Interstate Commerce Commission in July, 1925, The Commission (100 I. C. C. 665) found that there were 10,743 ratings, or 67.3 per cent of the total number, which were not lower in Southern than in Official territory, notwithstanding the fact that the gradation of class rates in Southern territory assigns a higher percentage of

first class to classes below the third class. Classes inferior to third class move the preponderance of class tonnage. Comparing the relation of classes first to sixth from Cincinnati, Ohio, to the Virginia Cities and to Winston-Salem and Durham, N. C., respectively, we find the following relationships to have existed up to January 15, 1928, when the Southern Class Rate adjustment became effective:

	Per Cent of First Class					
To—	1st	2nd	3rd	4th	5th	6th
Virginia Cities	100%	88%	66%	45%	38%	32%
Winston-Sal.-Durh'm	100%	88%	68%	51%	41%	34%

After January 15, 1928, and until the end of the year 1929 the following relationships existed:

	Per Cent of First Class					
To—	1st	2nd	3rd	4th	5th	6th
Virginia Cities	100%	88%	66%	45%	38%	32%
Winston-Sal.-Durh'm	100%	85%	70%	55%	45%	40%

This situation is to be borne in mind. Traffic originating on or moving northward over the branch lines carries Southern classifications. After January 15, 1928, a fifth class rating in Southern Territory, for example, carries the same percentage of the first-class Rate as a fourth-class rating in Official territory. A sixth-class rating in Southern territory takes a Rate which is 2% more of the first-class rate than a fifth-class rating in Official, and 8% more of the first-class Rate than a similar, or sixth-(49) class, rating in Official. As class rated traffic is concerned, there is, so far as revenue yield is concerned, a superiority in the ratings under Southern classification, because the classes inferior to third-class cover the bulk of the tonnage moving under class rates. Some of the tonnage moving over the main lines carries Southern

classification, but unquestionably it is a lesser part of the total than in the case of the branch lines.

Railway accounting and statistical practice presently disregards the specific source of revenue, that it, whether it is derived from class rates or commodity rates, and likewise fails to distinguish the tons or ton-miles moving under each kind of rates. Therefore, we have no definite information concerning the monetary importance of differences in ratings and class rate levels as they affect the whole or gross revenue. To give such matters adequate consideration is virtually impossible.

The examination of the Railway's revenue accounts for the months of October, 1927, 1928 and 1929, (and as respects car-load traffic only, for the month of January, 1929) developed some information which is helpful in considering, first, the relation of the levels of gross revenue earnings on the Carolina branches and on the remainder of the system, and, second, the relation of gross revenues actually earned on the branches to the operating expenses which earned them.

It is not possible to make a clear-cut distinction between traffic which moved under Class Rates as distinguished from Commodity Rates and deal with each item separately, but coal and coke traffic revenue can be segregated from all other freight revenue. It is feasible, therefore, to consider coal revenues separately, and I shall next take up the subject of coal traffic and the rate levels under which that traffic moves on the branches as compared with the main lines.

(49½) At this point I shall say that it is necessary to consider the levels of rates which produce gross revenues after the same fashion that Messrs. Vaughn and Konrad, for the Railway, were obliged to consider operating expenses. We shall first have to draw distinctions between the branch lines serving North Carolina and

the main lines which connect with those branches. As in the case of operating expenses, which were first assigned to the branches as a whole and thereafter apportioned to that part of the branches lying in North Carolina, we shall have to examine rate levels obtaining on the branches as a whole as compared with the main lines, and then consider the branch line rate levels as they affect traffic movements on the branches in Virginia and North Carolina respectively. I shall proceed in that order.

Another thing that may well be said here is that we are presently concerned only with the levels of rates which move traffic in Interstate commerce, and only that particular part of interstate traffic which receives an interstate movement on the Railway's system. All interstate revenue earned by m over the Railway's lines within the state, whether the traffic be interstate or intrastate in character, is assignable to the state without apportionment. The gross revenue apportionable to the state is therefore confined to interstate traffic which receives interstate movement on the Railway's system. If this condition is borne in mind it may save confusion, because it may be understood that unless otherwise specified my remarks concerning the relative levels of main and branch line rates and gross earnings will be addressed to this particular situation.

(50) Gross Revenue From Coal Traffic

A substantial part of the revenue tonnage handled by the Railway in North Carolina is bituminous coal. For the year 1929, statistics on file with the Interstate Commerce Commission* show 52,631 thousands out of 114,912 thousands of revenue net ton-miles transported in the State of North Carolina was coal. This is 45.80%. From meagre data contained in reports to the state it would seem that approximately this percentage would apply to the years 1927 and 1928.

An examination of the records concerning individual coal shipments which touched the state during the month of October, 1929, disclosed that the major part of the coal originated on the Railway's Pocahontas Division in rate basing Groups 3 and 4, a smaller part of it in Groups 5 and 6, and a very small part of it in Groups 1 and 2. The number of tons coming from each rate-basing group during that month was as follows:

	via Winston-Salem	via Durham		
Group	Branch	Branch	Total	% of Total
1 & 2	500	108	608	0.72%
3 & 4	42,797	9,639	52,436	62.11%
5 & 6	19,142	12,245	31,387	37.17%
Total	62,439	21,992	84,431	100.00%

To points on the branch lines south of Roanoke and Lynchburg, the rates on coal from Groups 1, 2, 3, and 4 are the same, with a few unimportant exceptions, and the rates from Groups 5 and 6 are ten cents per net ton higher. With this understanding, for the sake of brevity this discussion will be confined to the rates from Groups 3 and 4, in which originated the major part of the coal touching North Carolina.

For rates eastbound from the coal fields, the Pocahontas, Tug River, Clinch Valley No. 1, and Clinch Valley No. 2 areas, commonly referred to as the Pocahontas Group, are used as the base group, with minor exceptions. The average distance from producing points in the Pocahontas Group to Bluefield, Virginia is 100 miles; from Bluefield to Roanoke, 105 miles; Roanoke to Lynchburg, 54 miles; Lynchburg to Norfolk, 204 miles; Roanoke

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* ICC Docket No. 23842—Rates on bituminous coal in carlots from mines on N. & W. and Virginian to points in Virgina.

(51) to Winston-Salem, N. C., 121 miles; Lynchburg to Durham, N. C., 117 miles. From the Pocahontas Group, therefore, the mileage to sundry points is as follows:

To Roanoke, Va.	205 miles
To Winston-Salem, N. C.	326 miles
To Lynchburg, Va.	259 miles
To Durham, N. C.	376 miles
To Norfolk, Va.	463 miles

The rates on coal from the Pocahontas district (Groups 3 and 4) prior to September 8, 1930, to rate-breaking points east of the zone of coal field rates, on both the main line and the two principal branches serving North Carolina, show an irregular progression beyond Walton, Va., which is 165 miles from the producing field, with the same rate obtaining for relatively long hauls. This is notably true on the Main Line, where a rate of 265c per ton is blanketed back from Norfolk, Va., 197 miles to Leets, Va.

I have prepared a chart showing the coal rates in question. It shows the relative altitude of the rates holding on the main line and on the two branches for comparable distances. This chart is offered as an exhibit. It is captioned:

(MAKER'S EXHIBIT NO. R-7)

Chart Showing
Freight Rates on Carlot Bituminous Coal From Mines in Pocahontas District, Rate Groups 3 & 4, To Rate-Breaking Points on N&W Main Line and on Principal Branches Serving North Carolina.
(Rates effective during years 1927, 1928, and 1929)

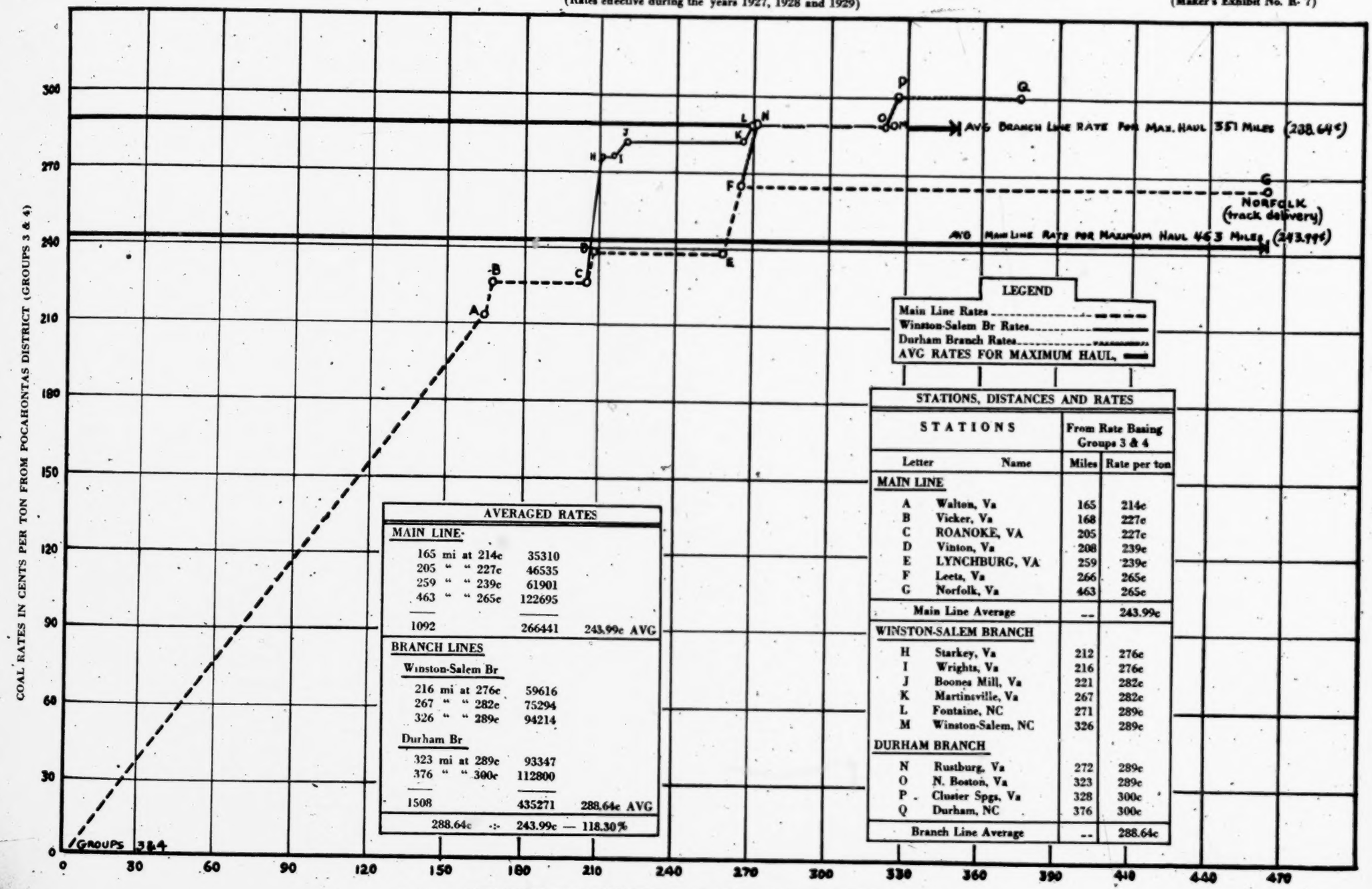
The rates charted on this exhibit were those obtaining prior to September 8, 1930, which held during the years

CHART SHOWING

FREIGHT RATES ON CARLOT BITUMINOUS COAL FROM MINES IN POCAHONTAS DISTRICT (GROUPS 3 & 4)
TO
RATE BREAKING POINTS ON N&W MAIN LINE, AND ON PRINCIPAL BRANCHES SERVING NORTH CAROLINA

(Rates effective during the years 1927, 1928 and 1929)

EXHIBIT NO. _____
WITNESS, Roberts, J. W.
(Maker's Exhibit No. R- 7)



LEGEND

- Main Line Rates
- Winston-Salem Br Rates
- Durham Branch Rates
- AVG RATES FOR MAXIMUM HAUL,

AVERAGED RATES

MAIN LINE		
165 mi at 214c	35310	
205 " " 227c	46535	
259 " " 239c	61901	
463 " " 265c	122695	
1092	266441	243.99c AVG
BRANCH LINES		
Winston-Salem Br		
216 mi at 276c	59616	
267 " " 282c	75294	
326 " " 289c	94214	
Durham Br		
323 mi at 289c	93347	
376 " " 300c	112800	
1508	435271	288.64c AVG
288.64c -:-	243.99c —	118.30%

STATIONS, DISTANCES AND RATES

STATIONS		From Rate Basing Groups 3 & 4	
Letter	Name	Miles	Rate per ton
MAIN LINE			
A	Walton, Va	165	214c
B	Vicker, Va	168	227c
C	ROANOKE, VA	205	227c
D	Vinton, Va	208	239c
E	LYNCHBURG, VA	259	239c
F	Leets, Va	266	265c
G	Norfolk, Va	463	265c
Main Line Average		--	243.99c
WINSTON-SALEM BRANCH			
H	Starkey, Va	212	276c
I	Wrights, Va	216	276c
J	Boones Mill, Va	221	282c
K	Martinsville, Va	267	282c
L	Fontaine, NC	271	289c
M	Winston-Salem, NC	326	289c
DURHAM BRANCH			
N	Rustburg, Va	272	289c
O	N. Boston, Va	323	289c
P	Cluster Spgs, Va	328	300c
Q	Durham, NC	376	300c
Branch Line Average		--	288.64c

1927, 1928, and 1929. They were taken from N&W Coal Tariff No. 4623, ICC 3083-B.

The abscissa of this chart is the distance in miles from mines in the Pocahontas District which comprises rate basing groups Nos. 3 and 4. The ordinate thereof is cents per ton. The main line rates are plotted with broken purple lines; the Winston-Salem Branch rates are plotted in red, and the Durham Branch rates are plotted (52) in solid purple lines. The break-points, mileage, and the rates are keyed into a table by the use of letters on the graphed lines.

From this chart it is apparent that the coal rates on the branch lines are relatively higher than those obtaining on the main line, distance considered. We lack information as to the average lengths of hauls on the main line and branches, the average ladings, the actual quantities of coal moved annually from the different rate base groups, and our difficulties are increased by the manner in which the rates are made. Nevertheless it is possible to make a conservative, if not an accurate, computation of the difference in the levels of the main and branch line coal rates.

The haul from Roanoke, Virginia, to Norfolk, Virginia, a distance of 258 miles, carries a rate increase over Roanoke of only 38c. A haul of 121 miles from Roanoke over the Winston-Salem Branch carries a rate increase over Roanoke of 62c. The gross revenue derived from the 121 mile haul for 62c on the branch line is 347.88% of the gross revenue derived from the 258 mile haul to Norfolk for only 38c. A haul of 121 miles to Winston-Salem over Roanoke would produce 62c per ton additional gross revenue, while a 121 mile haul east on the main line from Roanoke would produce only 38c additional revenue. The 117 mile haul from Lynchburg to Durham over the branch line produces 61c additional reve-

nue over Lynchburg, while a 117 mile haul east from Lynchburg on the main line would produce only 26c additional revenue. Combining and averaging the results of these two hauls on the branches, and on the main line, respectively, the average net ton-mile earnings on the main line are 0.26891 cents and on the branches 0.55882 cents, the latter being 207.81% of the main line revenue.

The 258 mile haul Roanoke to Norfolk for 38c additional gross revenue equals 0.14729 cents per net ton-mile. For the year 1929, the Railway's system average cost (exclusive of all terminal and interchange handling expenses) of hauling a Net Ton one mile was 0.3222 cents, which is 218.74% of the 0.14729 cents derived from the haul eastward from Roanoke to Norfolk. From (53) this one might reasonably surmise that the haul through the long 197-mile blanket of the Norfolk coal rate, and even from a point as far west as Roanoke, must be partially compensated for by the other rates shown on this exhibit.

On the main line, the average rate per ton for hauls between the coal fields and Norfolk is 243.99c. On the two branch lines considered together, the average rate per ton for hauls between coal fields and the branch line termini at Winston-Salem and Durham is 288.64c. Although the main line rate of 243.99c applies to a maximum haul of 463 miles, while the branch line rate applies to a maximum haul of only 351 miles (averaged), the branch line average rate is 118.30% of the main line rate. These averaged rates are shown on this exhibit by green lines drawn horizontally at their respective altitudes and through their respective maximum distances. The computation of the averaged rates is shown in a table on the chart.

Considering the manner in which these coal rates are progressed and blanketed, it does not seem illogical or

unfair to average them in order to consider their relationship. All of these coal rates are competitive with those of the Southern, C&O and Virginian roads which also tap the coal fields and serve the same territory. The exceptionally low level of the Leets-Norfolk rate, which holds for a distance of 197 miles after a productive haul of only 266 miles from the coal fields, is explained by both rail and water competition. Unquestionably this rate has to be supported by the relatively higher rates (distance considered) obtaining to the intermediate points west and south. In other words, if the main line averaged rate of 243.99c were distributed to comport with distance and the ratio of increase in transportation costs which occurs as haul lengthens, the actual main line rates to Roanoke, Lynchburg, in fact all points west of Leets, would be materially lowered and the rate to Norfolk substantially increased. The present Norfolk rate is therefore supported by the intermediate rates. For that reason it cannot fairly be considered that the product of the Roanoke rate, for instance, represents gross income Actually (54) Earned for the haul from the coal fields to that point, because some part of that revenue is drawn upon to support the rate scale further on, where coal is hauled a great distance with an increase in costs but with no increase in compensation. Whatever may be a fair conception of this situation, however, it affects only the degree in which branch line coal rates are the higher. It can hardly be construed to support an argument that they are the lower. On a comparable basis, it is my judgment that the branch line coal rates are approximately 118% of those obtaining on the main line, but in deference to the uncertainties in the matter, I have used a more conservative figure in my summation of the entire situation.

(54½) During October, 1929, the Railway received from the Virginian at Roanoke, 1,265 tons of coal des-

tined to Winston-Salem or beyond, for which the Railway's proportion of the through revenue was $1,180.82, or an overage of 93.34c per ton for the 121 mile haul over its branch line.

During the same month, the Railway received from the C&O at Lynchburg, 2,508 tons of coal destined to Durham or beyond, for which the Railway received as its proportion of the gross revenue $1,826.57, an average of 72.83c per ton for the 117 mile haul over its Durham Branch.

On traffic moving via its own line from the Main Line Junction point to the branch line termini it received 62c for the branch line haul to Winston-Salem, and 61c for the branch line haul to Durham. Its divisions on this interchange business for the haul Roanoke to Winston-Salem, was 150.55%, and for the haul Lynchburg to Durham, 119.39% of the branch line proportions of its own rates in the respective cases.

Examination of the traffic statistics discloses that while most of the coal moving over the branch lines in question originates on the Railway's rails, some part of it, although apparently a relatively small part, is received from connecting lines, in which case the Railway acts as the delivering line, or as a bridge line in case the traffic goes beyond the branch termini or leaves the branches at way stations for the movement thence via other carriers. The divisions received from the Virginian and C&O, as related to the branch line proportion of the rates via the Railway's line, illustrate the effect which the character of traffic may have upon gross earnings assignable to a particular section of the railroad.

I have prepared another exhibit, consisting of a single sheet, with the idea of affording another view of the situation respecting the apportionment of gross revenues

(55) derived from the coal traffic. This exhibit bears the inscription:

(MAKER'S EXHIBIT NO. R-8)

Relative Levels of Rates on the N&W Branches Serving North Carolina Versus Remainder of System.
Freight Rate Levels on Carlot Bituminous Coal From Mines in All Producing Districts to Equidistant Points on Main Line and Principal Branches Serving North Carolina.

Exhibit No._____

Witness: Roberts, J. W.
(Maker's Exhibit No. R-8)

Before the
HONORABLE SUPERIOR COURT OF WAKE COUNTY, NORTH CAROLINA
Concerning the
RELATIVE LEVEL OF RATES ON THE N. & W. BRANCHES SERVING NORTH CAROLINA vs. REMAINDER OF SYSTEM

FREIGHT RATE LEVELS ON CARLOT BITUMINOUS COAL FROM MINES IN ALL PRODUCING DISTRICTS TO EQUIDISTANT POINTS ON MAIN LINE AND PRINCIPAL BRANCHES SERVING NORTH CAROLINA

Line No.	Item	Durham District	Winston-Salem District	Total of Both Districts
	a	b	c	d
	OCTOBER 1927:			
1	N. & W. revenue from shipments to N. C. points (1)---	$ 50,631.97	$183,576.91	$234,208.88
2	North Carolina mileage prorate of revenue (1)---------			
3	Group 3 and 4 rate to N. C. points on branches (3)----	3.00	2.89	

4	Group 3 and 4 rate to equidistant points on main line (3)	2.65	2.65	
5	Percent N. C. rate of main line rate	113%	109%	
6	N. & W. revenue equated to a main line basis (Line 1÷5)	$ 44,807.05	$168,419.18	$213,226.23
7	Excess of branch line rates over main line rts. (Line 1–6)	5,824.92	15,157.73	20,982.65
8	N. C. proportion of branch line mileage	35.90%	38.84%	
9	N. C. propor. of excess of branch line rates (Line 7 x 8)	$ 2,091.15	$ 5,887.26	$ 7,978.41
10	N. C. mileage prorate of revenue—percent (2)			
11	N. C. mileage prorate of equated revenue (Line 6 x 10)			
12	Total N. C. proportion of N. & W. revenue on a rate prorate basis			
13	RATIO OF REVENUE ON A RATE PRORATE BASIS TO REVENUE ON A MILEAGE BASIS			
	OCTOBER 1928:			
14	N. & W. revenue from shipments to N. C. points (1)	$ 51,439.92	$150,124.78	$201,564.70
15	North Carolina mileage prorate of revenue (1)			
16	Group 3 and 4 rate to N. C. points on branches (3)	3.00	2.89	
17	Group 3 and 4 rate to equidistant points on main line (3)	2.65	2.65	
18	Percent N. C. rate of main line rate	113%	109%	
19	N. & W. revenue equated to a main line basis (Line 14÷18)	$ 45,522.05	$137,729.15	$183,251.20
20	Excess of branch line rates over main line rates (Line 14—19)	5,917.87	12,395.63	18,313.50

Line No.	Item	Durham District	Winston-Salem District	Total of Both Districts
	a	b	c	d
21	N. C. proportion of branch line mileage	35.90%	38.84%	
22	N. C. ppn. of excess of branch line rates (Line 20 x 21)	$ 2,124.52	$ 4,814.46	$ 6,938.98
23	N. C. mileage prorate of revenue—percent (2)			
24	N. C. mileage prorate of equated revenue (Line 19 x 23)			
25	Total N. C. proportion of N. & W. revenue on a rate prorate basis			
26	RATIO OF REVENUE ON A RATE PRORATE BASIS TO REVENUE ON A MILEAGE BASIS			
	OCTOBER 1929:			
27	N. & W. revenue from shipments to N. C. points (1)	$ 47,965.95	$106,635.93	$154,601.88
28	North Carolina mileage prorate of revenue (1)			
29	Group 3 and 4 rate to N. C. points on branches (3)	3.00	2.89	
30	Group 3 and 4 rate to equidistant points on main line (3)	2.65	2.65	
31	Percent N. C. rate of main line rate	113%	109%	

32	N. & W. revenue equated to a main line basis (Line 27÷31)	$ 42,447.74	$ 97,831.11	$140,278.85
33	Excess of branch line rates over main line rates (Line 27−32)	5,518.21	8,804.82	14,323.03
34	N. C. proportion of branch line mileage	35.90%	38.84%	
35	N. C. ppn. of excess of branch line rates (Line 33 x 34)	$ 1,981.04	$ 3,419.79	$ 5,400.83
36	N. C. mileage prorate of revenue—percent (2)			
37	N. C. mileage prorate of equated revenue (Line 32 x 36)			
38	Total N. C. proportion of N. & W. revenue on a rate prorate basis			
39	RATIO OF REVENUE ON A RATE PRORATE BASIS TO REVENUE ON A MILEAGE BASIS			

NOTE 1: The gross revenue from shipments on the respective districts was determined from a study of the carriers records for each of the three months above.
The results of these studies are shown on maker's exhibit R-6.

NOTE 2: This percentage is a weighted average of all shipments to the points in North Carolina for the respective months. The figure is determined by dividing the amounts shown on lines 2, 15, and 28 by the total revenue for the respective months.

NOTE 3: Authority for rates—N. & W. Coal and Coke Tariff No. 4623—I. C. C. 3083-B, Effective July 20, 1927.

Exhibit No.----------

Witness: Roberts, J. W.
(Maker's Exhibit No. R-8)

Line No.	Item	Abingdon Branch	Total Revenue	North Carolina Proportion
	a	e	f	g
	OCTOBER 1927:			
1	N. & W. revenue from shipments to N. C. points (1)---	$ 696.41	$234,905.29	
2	North Carolina mileage prorate of revenue (1)--------			$ 38,245.00
3	Group 3 and 4 rate to N. C. points on branches (3)----			
4	Group 3 and 4 rate to equidistant points on main line (3)			
5	Percent N. C. rate of main line rate----------			
6	N. & W. revenue equated to a main line basis (Line 1÷5)	$ 696.41	$213,922.64	
7	Excess of branch line rates over main line rts (Line 1–6)		20,982.65	
8	N. C. proportion of branch line mileage----------			$ 7,978.41
9	N. C. propor. of excess of branch line rates (Line 7 x 8)		16.28%	
10	N. C. mileage prorate of revenue—percent (2)--------		34,826.61	34,826.61
11	N. C. mileage prorate of equated revenue (Line 6 x 10)			

12	Total N. C. proportion of N. & W. revenue on a rate prorate basis			$ 42,805.02
13	RATIO OF REVENUE ON A RATE PRORATE BASIS TO REVENUE ON A MILEAGE BASIS			111.19%
	OCTOBER 1928:			
14	N. & W. revenue from shipments to N. C. points (1)	$ 874.98	$202,439.68	
15	North Carolina mileage prorate of revenue (1)			$ 32,702.56
16	Group 3 and 4 rate to N. C. points on branches (3)			
17	Group 3 and 4 rate to equidistant points on main line (3)			
18	Percent N. C: rate of main line rate			
19	N. & W. revenue equated to a main line basis (Line 14÷18)	$ 874.98	$184,126.18	
20	Excess of branch line rates over main line rates (Line 14−19)		18,313.50	
21	N. C. proportion of branch line mileage			
22	N. C. ppn. of excess of branch line rates (Line 20 x 21)			6,938.94
23	N. C. mileage prorate of revenue—percent (2)		16.15%	
24	N. C. mileage prorate of equated revenue (Line 19 x 23)		29,736.38	29,736.38
25	Total N. C. proportion of N. & W. revenue on a rate prorate basis			$ 36,675.32
26	RATIO OF REVENUE ON A RATE PRORATE BASIS TO REVENUE ON A MILEAGE BASIS			111.21%

Line No.	Item	Abingdon Branch	Total Revenue	North Carolina Proportion
	a	e	f	g
	OCTOBER 1929:			
27	N. & W. revenue from shipments to N. C. points (1)	$ 1,308.62	$155,910.50	
28	North Carolina mileage prorate of revenue (1)			$ 24,838.78
29	Group 3 and 4 rate to N. C. points on branches (3)			
30	Group 3 and 4 rate to equidistant points on main line (3)			
31	Percent N. C. rate of main line rate			
32	N. & W. revenue equated to a main line basis (Line 27÷31)	$ 1,308.62	$141,587.47	
33	Excess of branch line rates over main line rates (Line 27−32)		14,323.03	
34	N. C. proportion of branch line mileage			
35	N. C. ppn. of excess of branch line rates (Line 33 x 34)			5,400.83
36	N. C. mileage prorate of revenue—percent (2)		15.93%	
37	N. C. mileage prorate of equated revenue (Line 32 x 36)		22,554.88	22,554.88
38	Total N. C. proportion of N. & W. revenue on a rate prorate basis			$ 27,955.71
39	RATIO OF REVENUE ON A RATE PRORATE BASIS TO REVENUE ON A MILEAGE BASIS			111.25%

On this Exhibit the coal traffic touching the state of North Carolina during the months of October, 1927, October, 1928, and October, 1929, is separately dealt with. The business on each of the three branches is shown in Columns B, C, and E, respectively. The total for the two branches serving Winston-Salem and Durham is shown in Column D, and the total for the three branches in Column F, while the North Carolina proportions are shown in Column G.

Using the upper section of the exhibit, which relates to October, 1927, to illustrate its construction, please note that Line 1 shows the Railway's aggregate gross revenue from all coal and coke shipments touching the state, and Line 2 shows the state's proportion of such revenue determined on a mileage prorate basis. The revenue derived from each consignment has been prorated on a mileage basis. Now the revenue dealt with on this exhibit is derived from all coal transported which touched North Carolina in its movement, regardless of whether it originated in rate basing groups 1, 2, 3, 4, 5 or 6, or was received from connecting lines. For the purpose of comparison here set out, however, it is considered that all of this coal originated in rate basing groups 3 and 4, consistent with the premise of this discussion. In view of the fact as previously shown for October, 1929, that some of the coal comes from groups 5 and 6 carrying a rate 10c per ton higher than groups 3 and 4, and some part of it comes from connecting lines where the divisions received are materially greater than the branch line rate, (as shown with respect to coal received from the Virginian and C&O) it is manifestly conservative to use the rates holding from groups 3 and 4 in making the comparison.

(56) Line 3 shows the Group 3 and 4 rates to North Carolina points, which are 300c for the Durham Branch

and 289c for the Winston-Salem Branch, and Line 4 shows the Group 3 and 4 rate to equidistant points on the main line. Line 5 shows the percentage relation of the main line rates for like distances, to-wit: 113% for Durham Branch and 109% for Winston-Salem Branch. There was only $696.41 of coal revenue earned on the Abingdon Branch as against $234,905.29 total for October, 1927, which is so negligible as to have no effect on the comparisons. Consequently the Abingdon Branch situation is ignored.

On Line 6 the total gross revenue shown on Line 1 is equated to a main line basis by dividing the Line 1 figure in column B by 113 and the Line 1 figure in Column C by 109, which are the percentage factors. On Line 7 is shown the differences between Line 1 and Line 6. The amounts represent additional revenue accruing to the branches because of the higher rate levels obtaining on the branch lines. On Line 8 is shown the North Carolina proportions of the mileage of the respective branch lines, and the product of these percentages applied to the branch's excess proportion of the revenue gives the amounts shown on Line 9. This amount represents the differential in favor of the branch lines which is to be added to North Carolina's proportion of revenue equated to a main line basis to get the state's proportion on this basis which is comparable with its proportion of total revenue on a mileage prorate basis. North Carolina's mileage proportion of all revenue touching the state is 16.28%, as shown on Line 10. This figure is arrived at by dividing the $234,905.29 shown on Line 1 Column F by the $38,245.00 shown on Line 2 Column G. On Line 11 we find the result of applying this 16.28% to the total revenue equated to a main line basis as it appears at Line 10. North Carolina's proportion is $34,826.61, as shown in Columns F & G. This $34,826.61, plus the

$7,978.41 appearing on Line 9 Column G, gives $42,-(57) 805.02 as the state's mileage proportion of equated revenue, as compared with $38,245.00 which is its mileage proportion of unequated revenue per Line 2, Column G. Line 13 shows the relation of these two figures. The branch line mileage proportion of equated revenue is 111.19% of a mileage prorate of the total revenue touching the state unequated to respect differences in main and branch line rate levels.

The figures for the months of October, 1928, and October, 1929, are shown in the next two sections of the exhibit, and for those months the branch line ratios are 111.21% and 111.25% respectively.

From these considerations it may be safely concluded that as respects coal traffic only, the gross revenue actually earned on the branch lines serving North Carolina is necessarily greater than indicated by a straight mileage prorate of the revenue touching the state. Such meagre facts as we have to work with suggests to me that the ratio is greater than the 111% shown in this exhibit. The 111% appeals to me as being the minimum difference in favor of the branch lines. Depending upon the effect which divisions received from interchanged business has upon the total of all North Carolina coal traffic, and the volume of movements from Groups 5 and 6 via of the Railway's own line, both of which would favor and not disadvantage the branch lines, it is my judgment that percentages ranging between 115% and 120% of a straight mileage prorate might be close estimates of the gross revenue yield of coal traffic on the branches compared with the yield on the main line. This difference would be occasioned by a recognition, through rates and divisions, of the higher operating costs experienced on the branch lines.

(58) Gross Revenues From Class-Rated Traffic

As I have previously said, it is not possible to deal as a separate entity with gross revenues derived from class rates. We do not know how much of the total revenue came from that source, but we may be sure it was a substantial proportion.

We are able, however, to compare the levels of class rates as they apply to traffic moving over the Railway's main lines and North Carolina branches, respectively, and thus ascertain whether, as respects this class of traffic, the rates prevailing during the years in question contemplated the higher costs of branch line operations.

The gateways between Official and Southern territories are placed in two categories—the line of cities along the Ohio River, which are commonly referred to as the Ohio River Crossings; and the border points farther east which are known as the Virginia Cities. The latter include Roanoke and Lynchburg from which extend southward the Railway's branches which serve North Carolina in a principal way. During the years 1927, 1928, and 1929 the Railway published through class rates through the Roanoke and Lynchburg gateways, but when not published as such the tariffs provided for through rates to be made by combining published proportional rates to and from the Virigina Cities. The tariffs provided, moreover, that when through rates published were higher than the sum of proportional rates combined, that the lower combination rate superseded the published through rate.

To illustrate this situation let us take the actual case of the fourth-class rate from Chicago, Ill., to Winston-Salem, North Carolina, Effective January 15, 1928, and until after the close of the year 1929, this through fourth-class rate was 101c. The fourth-class proportional rate Chicago to Roanoke, the gateway point, was 63c, and the

proportional rate Roanoke to Winston-Salem was 35½c. The proportional rates combined equalled 98½c, and since this combination rate was less than the 101c published through rate, the combination rate became the effective rate. If a through rate had not been published, in that event the applicable rate would have been made automatically by combining the published proportional rates which otherwise were used to supersede the through rate which was published.

Proportional rates are provided for the purpose of being used in combination with other proportional rates (59) to make through rates, and usually are subject to the proviso that they must be used for that purpose only and that they do not apply to shipments moving between the points covered by the proportional rate. This signifies that the local rate is generally higher than the proportional rate. The logical reason for this is that the proportional rate covers at most but one terminal handling and the line haul, whereas a local rate must cover two terminal handlings and the linehaul.

In the Railway's case, however, as set forth in Section 3 of its Freight Tariff No. 15 (ICC No. 110, C. W. Galligan, Agent) which became effective Jan. 15, 1928, as aforesaid, the first- to sixth-class rates from, for example, Chicago, Ill., to Roanoke and Lynchburg, which applied to shipments destined to the latter points and thus involved two terminal handlings as well as the intermediate line haul, were precisely the same rates as were used for proportional rates to the Virginia Cities in connection with other proportional rates from the Virginia Cities to points on the Railway's North Carolina branches and beyond Winston-Salem and Durham. For that reason, the proportional rates applying on movements over the branch lines, say to Winston-Salem and Durham, may fairly be considered to represent only the

charge assessed for the line haul over the branches and the difference, if any, in the charge assessed for one branch line terminal handling in lieu of one main line terminal handling, because the proportional rate to the Gateway was actually the local rate thereto, and the local rate comprehended two terminal handlings.

In view of this situation, these branch line proportional rates (which are sometimes referred to as the branch line arbitraries) afford a reliable indication of the price charged by the Railway for transporting class freight over its Winston-Salem and Durham branches. It will therefore be of interest to contrast the revenues produced by class rates of the same level as those obtaining on the Railway's main lines (which lie within Official Classification Territory), and revenues produced by the proportional rates applicable over the Railway's branches serving Winston-Salem and Durham, North Carolina (such branches lying wholly in Southern Classification Territory).

For the value which it has as general information concerning the issue here involved, I have prepared a two sheet exhibit which contrasts the revenue yield of the respective series of class-rates, and it is identified as follows:

(60) Relative Levels of Rates on N&W Branch Lines Serving North Carolina Versus Remainder of System Class-Rated Freight Traffic Gross Revenue Yield Per Net Ton-Mile on Carload Movements of First- to Sixth-Class Traffic

Exhibit No._____
Witness: Roberts, J. W.
(Maker's Exhibit No. R-9)

Before the
HONORABLE SUPERIOR COURT OF WAKE COUNTY, NORTH CAROLINA
Concerning the
RELATIVE LEVELS OF RATES ON THE N. & W. BRANCHES SERVING NORTH CAROLINA vs. REMAINDER OF SYSTEM

CLASS RATED FREIGHT TRAFFIC

GROSS REVENUE YIELD PER NET TON MILE ON CARLOAD MOVEMENTS OF FIRST TO SIXTH CLASS TRAFFIC COMPARING ACTUAL GROSS EARNINGS ON 7,269 CARLOADS ORIGINATING IN C. F. A. AND MOVING TO EASTERN TRUNK LINE TERRITORY (LOADINGS OF OCT. 26-27, 1926) WITH THE EARNINGS RESULTING FROM THE APPLICATION OF THE ARBITRARY PROPORTIONAL RATES (1) OBTAINING ON THE N. & W. DURHAM-WINSTON-SALEM BRANCHES.

(See Note 2 for Authority)

Line No.	Item	Ratings		
		110% of 1st	2nd Class	3rd Class
		Automobiles	Auto Bodies, Furniture, Aluminum-Ware, etc.	Wool in Grease Childrens Vehicles, Motor Tires, Furniture, etc.
		a	b	c

	OFFICIAL TERRITORY CLASS-RATES:			
1	Number of Carloads	1,008	769	295
2	Number of net tons	5,650.570	6,405.867	3,410.556
3	Average haul—miles	599	417	534
4	Net ton miles (Line 2 x 3)	3,384,691	2,671,247	1,821,237
5	Total revenue	$ 128,399.88	$ 94,855.85	$ 45,725.87
6	Average revenue per net ton mile (Line 5÷4)	c 3.7935	c 3.5510	c 2.5107
	VS. N. & W. ARBITRARIES OVER BRANCHES:			
7	Number of cwt. (Line 2 x 20)	113,011.40	128,117.34	68,211.13
8	Arbitraries via N. & W. branches (Southern Classification)	70c	59c	47½c
9	Equivalent revenue (Line 7 x 8)	$ 79,107.98	$ 75,589.23	$ 32,400.29
10	Average branch mileage (117 miles+121 miles=Average 119 miles)	119	119	119
11	Number of net tons (Line 2)	5,650.570	6,405.867	3,410.556
12	Equivalent net ton miles	672,417	762,298	405,856
13	Average revenue per net ton mile (Line 9÷12)	c 11.7647	c 9.9160	c 7.9832
14	Ratio (%) revenue per net ton mile branches (Line 13÷6)	310.13%	279.25%	317.97%

Exhibit No._____
Witness: Roberts, J. W.
(Maker's Exhibit No. R-9)

Line No.	Item	Ratings: 4th Class — Barrels, Cakes, Crackers, Copper Bars, Aluminum Ingots, Tin Cans, and Carboys, etc.	Ratings: 5th Class — Transformers, Stoneware, Electric Motors, Canned Goods, Envelopes, etc.	Ratings: 6th Class — Lumber, Print Paper, Scrap Paper, Sewer Pipe, Scrap Rubber, Roofing Tile, etc.	Totals and Weighted Averages All Items
		d	e	f	g
	OFFICIAL TERRITORY CLASS-RATES:				
1	Number of carloads	499	3,913	785	7,269
2	Number of net tons	6,592.818	86,590.915	16,376.181	125,026.907
3	Average haul—miles	414	400	324	404
4	Net ton miles (Line 2 x 3)	2,729.427	34,636,366	5,305,883	50,548,851
5	Total revenue	$ 55,713.62	$ 543,002.42	$ 72,247.54	$ 939,945.18
6	Average revenue per net ton mile (Line 5÷4)	c 2.0412	c 1.5677	c 1.3616	c 1.8595

	Vs. N. & W. Arbitraries Over Branches:				
7	Number of cwt. (Line 2 x 20)---	131,856.36	1,731,818.31	327,523.63	2,500,538.17
8	Arbitraries via N. & W. branches (Southern Classification)------	35½c	(3) 29½c	24½c	
9	Equivalent revenue (Line 7 x 8)-	$ 46,809.01	$ 510,886.40	$ 80,243.29	$ 825,036.20
10	Average branch mileage (117 miles+121 miles÷Avg. 119 miles)----	119	119	119	119
11	Number of net tons (Line 2)------	6,592.818	86,590.915	16,376.181	125,026.907
12	Equivalent net ton miles---------	784,545	10,304,319	1,948,766	14,878,201
13	Average revenue per net ton mile (Line 9÷12)----------	c 5.9664	c 4.9580	c 4.1176	c 5.5453
14	Ratio (%) revenue per net ton mile branches (Line 13÷6)---	292.30%	316.26%	302.41%	298.21%

NOTE 1: N. & W. branch line arbitrary proportional rates (per line 8) per Freight Tariff No. 15—C. W. Galligan, Agent, I. C. C. No. 110 (F. L. Speiden, Agent, I. C. C. No. 1143), Effective January 15, 1928.

NOTE 2: Data as to movements and revenue C. F. A.—Official Territories from Exhibit No. 187—Witness: S. J. Witt, General Freight and Passenger Agent, A. C. & Y. Ry. Co. and Northern Ohio Ry. Co., in I. C. C. Docket No. I and S 3,000 "Cancellation of Commodity Rates On Sewer Pipe In C. F. A. Territory" obtained from docket files of I. C. C. at Washington, D. C.

NOTE 3: Not applicable to canned goods, which are covered by commodity rates.

Exhibit No._____
Witness: S. J. Witt.
(Maker's Exhibit No. R-9)
Sheet No. 2 of 2 sheets.

Copy

ANALYSIS OF CARLOAD TRAFFIC MOVED AT CLASS RATES OR PERCENTAGES THEREOF ORIGINATING AT POINTS IN CENTRAL FREIGHT ASSOCIATION TERRITORY ON OCTOBER 26TH, AND 27TH, 1926, AND DESTINED TO POINTS IN OFFICIAL CLASSIFICATION TERRITORY

Class	No. of Cars	Weight (Pounds)	Revenue	Car-miles of Service (Loaded)	Average Weight per Car (Pounds)	Average Distance (Miles)	Average Revenue per Car Mile (Cents)
110% of 1st	1,008	11,301,140	$ 128,399.88	603,933	11,211	599	21.3
2nd	769	12,811,734	94,855.85	320,524	16,660	417	29.6
R-25	49	851,224	7,494.60	36,097	17,372	737	20.8
3rd	295	6,821,113	45,725.87	157,658	23,122	534	29.0
R-26	138	3,197,202	17,578.13	75,926	23,168	550	23.2
4th	499	13,185,636	55,713.62	206,621	26,424	414	27.0
5th	3,913	173,181,831	543,002.42	1,566,264	44,258	400	34.7
6th	785	32,752,363	72,247.54	254,087	41,723	324	28.4

65% of 6th	26	1,134,346	1,236.33	3,652	43,629	140	34.0
70% of 6th	13	1,083,688	1,338.34	2,305	83,361	177	58.2
75% of 6th	65	2,761,025	3,558.25	8,694	42,477	134	40.9
80% of 6th	43	2,632,559	4,094.02	10,435	61,222	243	39.2
83.33% of 6th	38	2,484,605	3,677.46	7,632	65,384	201	48.1
85% of 6th	161	11,401,865	21,451.64	50,440	70,819	313	42.6
86.66% of 6th	3	113,506	168.14	496	37,835	165	34.0
90% of 6th	450	18,564,910	34,873.83	117,404	41,255	261	29.7
Totals	8,255	294,278,747	$1,035,415.92	3,422,168	35,649	415	30.2

Compiled by Central Freight Association
Chicago, Ill., Nov. 19, 1927.

Comparing actual gross earnings on 7269 carloads originating October 26-27, 1926, in CFA and moving to Eastern Trunk Line Territory, with earnings resulting from the application of the arbitrary proportional rates obtaining on the N&W Winston-Salem and Durham Branch Lines.

Data respecting the movements in Official territory were abstracted from Exhibit No. 187-Witness S. J. Witt, which was introduced before the Interstate Commerce Commission in I&S Docket No. 3000-Cancellation of Commodity rates on sewer pipe in CFA territory. I have a photostat copy of the exhibit as it appears in the ICC docket files at Washington, D. C., and it is available for counsel's inspection if they desire to examine it. I have not used a relatively small amount of traffic shown on Mr. Witt's exhibit which moved in Official territory under percentages of the sixth-class rate, because the Railway's tariffs do not publish the same percentages of that rate as being applicable over its North Carolina branches.

The comparison shown on this exhibit is not a true one, but it is not unfair to the Railway's interests in this case. The average haul in Official territory for the shipments considered is 404 miles, while the average haul over the Winston-Salem and Durham branches for maximum distances is only 119 miles, or 29.45% of the 404 miles. Ordinarily this discrepancy in average haul would disqualify the comparison and favor the shorter hauls. But that is not so in this case. Discrepancy in average hauls distort comparisons so as to favor shorter hauls only when terminal and interchange handlings are involved, because the shorter the haul the greater effect terminal and interchange services, represented by either expense or compensation, has upon ton-mile averages. The longer the haul the less effect Terminal expense or

compensation has, because it dwindles in proportion as the line haul element increases with distance. In this comparison the revenue earned in Official territory represents compensation for two terminal handlings in the case of every shipment, and on hauls averaging 404 miles terminal compensation would comprise something like 30 to 40 per cent of the total revenue. On the branch lines, however, the proportional rates applied to develop the revenue cover line haul service only (save possibly some small amount to compensate for the difference, debit or credit, in the value of one branch line terminal in lieu of one main line terminal) because compensation for two terminal handlings is included in the local rate to the (60a) gateway point, which is also used as the proportional rate to the gateway. It is apparent, under these circumstances, that the contrast shown on the exhibit is not prejudicial, but on the other hand unduly favorable, to the Railway's interests in this case. It is not feasible to develop in an orderly and precise fashion the facts which we need to know to determine the actual relationship between Actual gross earnings and the Actual expenses which earned them, which has been made an issue in this case. We are obliged to examine the situation piecemeal, viewing it from such points of vantage as are accessible. It is proper, therefore, to understand that this exhibit provides a view from only one angle. It is not feasible to adjust the actual revenue earned on these 7269 carloads of what I think we may assume to be typical class-rated traffic, so as to measure with a close approach to accuracy the difference in the yield of rates under which the Railway's main lines work and those applicable to the branch lines. The official territory class-rates were not made on a mileage scale, but were based upon relationships to Chicago-New York rates. For that reason we cannot exclude the approximate terminal compensation

and get at the line haul proportion of the revenue and compare it with the branch line proportional rate revenue which relates to line haul service only. Furthermore, there are certain differences in Official classifications, under which the revenues accrued in Official territory, and Southern classifications under which the branch line proportional rates are applicable. Some few of the commodities moving under class rates in Official territory would take commodity rates in Southern territory. However, if we make generous allowance for differences which disadvantage the branch line showing, and ignore, if desired, the differences which would advantage it, it still seems certain that the relationships developed on this exhibit are significant and not seriously misleading. We shall later consider other exhibits which view the same matter from other angles.

Sheet 1 of this Exhibit R-9 is the principal sheet, and sheet 2 thereof is a copy of the summary of Mr. S. J. Witt's Exhibit No. 187 from which the traffic quantities and revenues were taken,

On Lines 1 to 6 of the first sheet are shown the number of carloads, the number of net tons transported, the average haul in miles, the aggregate net ton-miles, the total revenue earned, and the average revenue per net ton-mile, for 1008 carloads moving under 110% of first-class (60b) (which takes 100% of first-class in Southern territory), 769 carloads under Class 2, 295 under Class 3, 499 under Class 4, 3913 under Class 5, and 785 under Class 6, a total of 7269 carloads. This particular block of traffic is used because it actually moved and provides a cross-sectional view of a large number of shipments as they are dispersed among the classes.

To the same number of carloads and net tons of lading I have applied the proportional rates applicable over the Winston-Salem and Durham branches for hauls to the

termini of those branches, which is an average haul of 119 miles. The resultant data are shown on Lines 7 to 13. The proportional rates for the branch line movements are shown on Line 8. They were taken from N&W Freight Tariff No. 15, C. W. Galligan, Agent, ICC No. 110 (F. L. Speiden, Agent, ICC No. 1143) effective January 15, 1928. These rates represent the charges which would have been assessed for the branch line hauls to Winston-Salem and Durham (the rates being common to each destination) had the traffic moved thereto under under class-rates made by combining the published proportional rates to and from the gateway junction points of Roanoke and Lynchburg. Sustantially the same showing would be made for the year 1927.

On Line 14 the percentage relationship of the ton-mile earnings for the respective classes are shown in Columns A to F, and for all six classes in Column G. The Column G percentage is 298.21%, which signifies that these branch line proportional rates covering 119 miles of average haul, and virtually line haul service only, yield revenue per net ton-mile which is 198.21% greater than official territory rates of the same classes applied to hauls averaging 404 miles, and providing compensation for two terminal handlings as well as the line haul service. The $825,036.20 of revenue produced by the branch line proportional rates is 88.78% of the $939,945.19 of revenue shown on Line 5, although the 119 mile branch line haul is only 29.45% of the 404 mile haul, and does not contain terminal compensation which the revenue from the 404-mile hauls does include.

Any attempt to measure the relative altitudes of rates applicable to a particular section of a railroad encounters many difficulties, and chief among them is the paucity of statistical data reflecting the volume of movement and revenues derived from different kinds of traffic. In the

absence of special studies which the railroads alone are in position to make, such attempts must fall short of being (61) complete and satisfactory. Their incompleteness may result in their being misleading in some degree unless their purport and premises are fully understood. The great variety of traffic, the many different systems and schedules of rates which relate thereto, and the almost innumerable movements, preclude the selection of any reasonable number of individual shipments for presentation as representative instances, because we have no means of being sure that they are in fact representative. In an effort to get at the probable truth of the matter of main and branch line class-rate relationships in this case, I have set up another exhibit which deals with class-rates first to sixth. Under these classes, as I have heretofore said, the greater proportion of class rate traffi moves. In the case of this exhibit, rates attaching to traffic which originates at off-line points are considered, the originating points being six cities, which are known, in a general way, to ship large quantities of class rated freights to the southeast and whose locations are such as to make such traffic available to the Railway's line. From these cities the rates in some cases make over the Ohio River Crossings, using combinations of locals to and from such gateways. In other cases the rates may be through rates, and in some cases they are combinations based on the Virginia Cities, using the arbitraries referred to in the preceding exhibit, as is the case with the fourth-class rate from Chicago to branch line destinations which was used as an example.

This exhibit consists of four sheets and is identified as follows:

(MAKER'S EXHIBIT NO. R-10)

Relative Levels of Rates on the N&W Branches Serving North Carolina Versus Remainder of System

Comparison of Branch Line Proportion of First to Sixth-Class Rates on Mileage Prorate Basis With Branch Line Proportion of Through Rates.

Exhibit No.
Witness: Roberts, J. W.
(Maker's Exhibit No. R-10)
Sheet No. 1 of 4 sheets.

Before the
HONORABLE SUPERIOR COURT OF WAKE COUNTY, NORTH CAROLINA
Concerning the
RELATIVE LEVELS OF RATES ON THE N. & W. BRANCHES SERVING NORTH CAROLINA VERSUS REMAINDER OF SYSTEM
COMPARISON OF BRANCH LINE PROPORTION OF FIRST TO SIXTH CLASS RATES ON MILEAGE PRORATE BASIS, WITH BRANCH LINE PROPORTION OF THROUGH RATES
SUMMARY
SHOWING THE BRANCH LINE RATIOS FOR RATES CLASSES FIRST TO SIXTH WEIGHTED ACCORDING TO CLASS RATED TRAFFIC TESTS IN OFFICIAL AND SOUTHERN TERRITORIES
I. SOUTHERN TERRITORY TRAFFIC TEST IN SOUTHERN CLASS RATE INVESTIGATION (100 I. C. C. 595)
(Excluding Intraterritorial Intrastate.)

Class	Item	Southern Traffic Test of (1)			Total Factor 3 Tests	Percent of Classes 1 to 6
		July 1922	Nov. 1922	Year 1924		
a	b	c	d	e	f	g
1st	a Interterritorial	20.19%	23.03%	17.47%		
	b Intraterritorial Interstate	10.56%	13.99%	6.57%	9,181	22.54%

504

2nd	a Interterritorial	9.53%	11.02%	10.86%		
	b Intraterritorial Interstate---	6.56%	7.43%	3.79%	4,919	12.07%
3rd	a Interterritorial	12.04%	14.86%	11.30%		
	b Intraterritorial Interstate---	11.01%	13.50%	6.04%	6,875	16.88%
4th	a Interterritorial	12.23%	11.09%	10.16%		
	b Intraterritorial Interstate---	9.63%	11.64%	5.93%	6,068	14.89%
5th	a Interterritorial	9.69%	12.03%	10.89%		
	b Intraterritorial Interstate---	11.05%	9.88%	5.65%	5,915	14.52%
6th	a Interterritorial	15.69%	14.92%	16.09%		
	b Intraterritorial Interstate---	12.69%	12.46%	5.98%	7,783	19.10%
Totals, and Weighted Average-----					40,741	100.00%

I. SOUTHERN TERRITORY TRAFFIC TEST IN SOUTHERN CLASS RATE INVESTIGATION (100 I. C. C. 595)—*Continued*

Class	Item	Branch Line Proportion of Rates—Cents Per Hundredweight				Ratio Branch Line Proportion of Thru Rate To Mileage Prorate
		Unweighted		Weighted		
		Mileage Prorate	Proportion of Thru Rate	Mileage Prorate	Proportion of Thru Rate	
a	b	h	i	j	k	l
1st	a Interterritorial b Intraterritorial Interstate	532.19c	1,394.00c	120.18c	314.21c	
2nd	a Interterritorial b Intraterritorial Interstate	610.36c	1,063.50c	73.67c	128.36c	
3rd	a Interterritorial b Intraterritorial Interstate	499.22c	1,142.50c	84.27c	192.85c	
4th	a Interterritorial b Intraterritorial Interstate	379.31c	1,090.50c	56.48c	162.38c	

5th	a Interterritorial b Intraterritorial Interstate---	315.26c	877.00c	45.78c	127.34c	
6th	a Interterritorial b Intraterritorial Interstate---	265.59c	750.00c	50.73c	143.25c	
Totals, and Weighted Average----------				431.11c	1,068.39c	247.82%

II. OFFICIAL TERRITORY TEST, PER S. J. WITT EXHIBIT No. 187 IN I. C. C. DOCKET I & S No. 3000, MADE OCTOBER, 1926.

Class	Pounds	Net Tons	Average Haul-Mile	Net Ton-Miles	Percent of Total Classes 1 to 6
a	b	c	d	e	f
1st	11,301,140	5,651	599	3,384,949	6.69%
2nd	12,811,734	6,406	417	2,671,302	5.29%
3rd	6,821,113	3,410	534	1,820,940	3.60%
4th	13,185,636	6,593	414	2,729,502	5.40%
5th	173,181,831	86,591	400	34,636,400	68.52%
6th	32,752,363	16,376	324	5,305,824	10.50%
	Totals and Weighted Averages			50,548,917	100.00%

(1) Percent of revenue tonnage.

Class	Branch Line Proportion of Rates—Cents Per Hundredweight				Ratio Branch Line Proportion of Thru Rate To Mileage Prorate
	Unweighted		Weighted		
	Mileage Prorate	Proportion of Thru Rate	Mileage Prorate	Proportion of Thru Rate	
a	g	h	i	j	k
1st	533.19c	1,394.00c	35.67c	93.26c	
2nd	610.36c	1,063.50c	32.29c	56.26c	
3rd	499.22c	1,142.50c	17.97c	41.13c	
4th	379.31c	1,090.50c	20.48c	58.89c	
5th	315.26c	877.00c	216.01c	600.92c	
6th	265.59c	750.00c	27.89c	78.75c	
	Totals and Weighted Averages----		350.31c	929.21c	265.25%

Exhibit No._____
Witness: Roberts, J. W.
(Maker's Exhibit No. R-10)
Sheet No. 2 of 4 sheets.

Concerning the
Relative Levels of Rates on the N&W Branches Serving North Carolina Versus Remainder of System.
Comparison of Branch Line Proportion of First to Sixth Class Rates on Mileage Prorate Basis, With Branch Line Proportion of Through Rates.

Origins and Branch Line Destinations	Route Reference	Tariff Route Miles to Branch Line Jct.	Tariff Route Miles to On Branch Line	Tariff Route Miles to Total
a	b	c	d	e
FROM DETROIT, MICH. TO	E			
Martinsville, Va.		589.6	62	651.6
Mayodan, N. C.		589.6	88	677.6
Winston-Salem, N. C.		589.6	121	710.6
South Boston, Va.		642.2	64	706.2
Roxboro, N. C.		642.2	86	728.2
Durham, N. C.		642.2	117	759.2
FROM CHICAGO, ILL. TO:	A			
Martinsville, Va.		703.2	62	765.2
Mayodan, N. C.		703.2	88	791.2
Winston-Salem, N. C.		703.2	121	824.2
South Boston, Va.		755.8	64	819.8
Roxboro, N. C.		755.8	86	841.8
Durham, N. C.		755.8	117	872.8
FROM PEORIA, ILL. TO:	C			
Martinsville, Va.		740.0	62	802.0
Mayodan, N. C.		740.0	88	828.0
Winston-Salem, N. C.		740.0	121	861.0
South Boston, Va.		792.6	64	856.6
Roxboro, N. C.		792.6	86	878.6
Durham, N. C.		792.6	117	909.6

Tariff Rates to		Average Revenue Per Cwt-Mile to Branch Line Destination	Branch Line Proportion		Ratio-Branch Line Proportion of Thru Rate To Mileage Prorate
Roanoke-Lynchburg	Branch Destination		On Mileage Prorate	Of Thru Rate (G—F)	
f	g	h	i	j	k
		First Class.			
108c	159c	0.2440c	15.13c	51.00c	
108	170	0.2509	22.08	62.00	
108	171	0.2406	29.11	63.00	
108	159	0.2252	14.41	51.00	
108	171	0.2348	20.19	63.00	
108	171	0.2252	26.35	63.00	
139c	172c	0.2248c	11.46c	33.00c	
139	184	0.2326	14.42	45.00	
139	184	0.2232	15.62	45.00	
139	172	0.2098	10.70	33.00	
139	184	0.2186	14.21	45.00	
139	184	0.2108	14.76	45.00	
153c	174c	0.2170c	11.07c	21.00c	
153	186	0.2246	13.93	33.00	
153	186	0.2160	15.12	33.00	
153	174	0.2031	10.36	21.00	
153	186	0.2117	13.76	33.00	
153	186	0.2045	14.32	33.00	

Origins and Branch Line Destinations	Route Reference	Tariff Route Miles to Branch Line Jct.	Tariff Route Miles to On Branch Line	Tariff Route Miles to Total
a	b	c	d	e
FROM BURLINGTON, IA. TO:	B			
Martinsville, Va.		832.5	62	894.5
Mayodan, N. C.		832.5	88	920.5
Winston-Salem, N. C.		832.5	121	953.5
South Boston, Va.		885.1	64	949.1
Roxboro, N. C.		885.1	86	971.1
Durham, N. C.		885.1	117	1,002.1
FROM CLEVELAND, OHIO TO:	F			
Martinsville, Va.		547.0	62	609.0
Mayodan, N. C.		547.0	88	635.0
Winston-Salem, N. C.		547.0	121	668.0
South Boston, Va.		599.6	64	663.6
Roxboro, N. C.		599.6	86	685.6
Durham, N. C.		599.6	117	716.6
FROM INDIANAPOLIS, IND. TO:	D			
Martinsville, Va.		585.5	62	647.5
Mayodan, N. C.		585.5	88	673.5
Winston-Salem, N. C.		585.5	121	706.5
South Boston, Va.		581.1	64	645.1
Roxboro, N. C.		581.1	86	667.1
Durham, N. C.		581.1	117	698.1
Total of Class				

Tariff Rates to		Average Revenue Per Cwt-Mile to Branch Line Destination	Branch Line Proportion		Ratio-Branch Line Proportion of Thru Rate To Mileage Prorate
Roanoke-Lynchburg	Branch Destination		On Mileage Prorate	Of Thru Rate (G—F)	
f	g	h	i	j	k
		First Class.			
163c	184c	0.2057c	10.49c	21.00c	
163	196	0.2129	13.20	33.00	
163	196	0.2056	14.39	33.00	
163	184	0.1939	9.89	21.00	
163	196	0.2018	13.12	33.00	
163	196	0.1956	13.69	33.00	
106½c	144c	0.2365c	12.06c	37.50c	
106½	156	0.2457	15.23	49.50	
106½	156	0.2335	16.35	49.50	
106½	144	0.2170	11.07	37.50	
106½	156	0.2275	14.79	49.50	
106½	156	0.2177	15.24	49.50	
129c	150c	0.2317c	11.82c	21.00c	
129	162	0.2405	14.91	33.00	
129	162	0.2293	16.05	33.00	
129	150	0.2325	11.86	21.00	
129	162	0.2428	15.78	33.00	
129	162	0.2321	16.25	33.00	
			533.19c	1,394.00c	261.45%

Origins and Destinations	Route Reference	Tariff Route Miles to Branch Line Jct.	Tariff Route Miles to On Branch Line	Tariff Route Miles to Total
a	b	c	d	e
FROM DETROIT, MICH. TO	E			
Martinsville, Va.		589.6	62	651.6
Mayodan, N. C.		589.6	88	677.6
Winston-Salem, N. C.		589.6	121	710.6
South Boston, Va.		642.2	64	706.2
Roxboro, N. C.		642.2	86	728.2
Durham, N. C.		642.2	117	759.2
FROM CHICAGO, ILL. TO:	A			
Martinsville, Va.		703.2	62	765.2
Mayodan, N. C.		703.2	88	791.2
Winston-Salem, N. C.		703.2	121	824.2
South Boston, Va.		755.8	64	819.8
Roxboro, N. C.		755.8	86	841.8
Durham, N. C.		755.8	117	872.8
FROM PEORIA, ILL. TO:	C			
Martinsville, Va.		740.0	62	802.0
Mayodan, N. C.		740.0	88	828.0
Winston-Salem, N. C.		740.0	121	861.0
South Boston, Va.		792.6	64	856.6
Roxboro, N. C.		792.6	86	878.6
Durham, N. C.		792.6	117	909.6
FROM BURLINGTON, IA. TO:	B			
Martinsville, Va.		832.5	62	894.5
Mayodan, N. C.		832.5	88	920.5
Winston-Salem, N. C.		832.5	121	953.5
South Boston, Va.		885.1	64	949.1
Roxboro, N. C.		885.1	86	971.1
Durham, N. C.		885.1	117	1,002.1

Tariff Rates to		Average Revenue Per Cwt-Mile to Branch	Branch Line Proportion		Ratio-Branch Line Proportion of Thru
Roanoke-Lynchburg	Branch Destination	Line Destination	On Mileage Prorate	Of Thru Rate (M—L)	Rate To Mileage Prorate
l	m	n	o	p	q
		Second Class.			
94c	133½c	0.2049c	12.70c	39.50c	
94	141½	0.2088	18.37	47.50	
94	145	0.2041	24.70	51.00	
94	133½	0.1890	12.10	39.50	
94	145	0.1991	17.12	51.00	
94	145	0.1910	22.35	51.00	
121½c	146c	0.1908c	11.83c	24.50c	
121½	156	0.1972	17.35	34.50	
121½	156	0.1893	22.91	34.50	
121½	146	0.1781	11.40	24.50	
121½	156	0.1853	15.94	34.50	
121½	156	0.1787	20.91	34.50	
134c	148c	0.1845c	11.44c	14.00c	
134	158	0.1908	16.79	24.00	
134	158	0.1835	22.20	24.00	
134	148	0.1728	11.06	14.00	
134	158	0.1798	15.46	24.00	
134	158	0.1737	20.32	24.00	
142½c	156c	0.1744c	10.81c	13.50c	
142½	167	0.1814	15.96	24.50	
142½	167	0.1751	21.19	24.50	
142½	156	0.1644	10.52	13.50	
142½	167	0.1720	14.79	24.50	
142½	167	0.1667	19.50	24.50	

Sheet 2 of 4

Origins and Branch Line Destinations	Route Reference	Tariff Route Miles to Branch Line Jct.	Tariff Route Miles to On Branch Line	Total
a	b	c	d	e
FROM CLEVELAND, OHIO TO:	F			
Martinsville, Va.		547.0	62	609.0
Mayodan, N. C.		547.0	88	635.0
Winston-Salem, N. C.		547.0	121	668.0
South Boston, Va.		599.6	64	663.6
Roxboro, N. C.		599.6	86	685.6
Durham, N. C.		599.6	117	716.6
FROM INDIANAPOLIS, IND. TO:	D			
Martinsville, Va.		585.5	62	647.5
Mayodan, N. C.		585.5	88	673.5
Winston-Salem, N. C.		585.5	121	706.5
South Boston, Va.		581.1	64	645.1
Roxboro, N. C.		581.1	86	667.1
Durham, N. C.		581.1	117	698.1
Total of Class				

Tariff Rates to		Average Revenue Per Cwt-Mile to Branch Line Destination	Branch Line Proportion		Ratio-Branch Line Proportion of Thru Rate To Mileage Prorate
Roanoke-Lynchburg	Branch Destination		On Mileage Prorate	Of Thru Rate (M—L)	
l	m	n	o	p	q
		Second Class.			
93c	122c	0.2003c	12.42c	29.00c	
93	133	0.2094	18.43	40.00	
93	133	0.1991	24.09	40.00	
93	122	0.1838	11.76	29.00	
93	133	0.1940	16.68	40.00	
93	133	0.1856	21.72	40.00	
113c	128c	0.1977c	12.26c	15.00c	
113	138	0.2049	18.03	25.00	
113	138	0.1953	23.63	25.00	
113	128	0.1984	12.70	15.00	
113	138	0.2069	17.79	25.00	
113	138	0.1977	23.13	25.00	
			610.36c	1,063.50	174.24%

Exhibit No._____
Witness: Roberts, J. W.
(Maker's Exhibit No. R-10)
Sheet No. 3 of 4 sheets.

Concerning the Relative Levels of Rates on the N&W Branches Serving North Carolina Versus Remainder of System.

Comparison of Branch Line Proportion of First to Sixth Class Rates on Mileage Prorate Basis, With Branch Line Proportion of Through Rates.

Origins and Branch Line Destinations	Route Reference	Tariff Route Miles to		
		Branch Line Jct.	On Branch Line	Total
a	b	c	d	e
FROM DETROIT, MICH. TO	E			
Martinsville, Va.		589.6	62	651.6
Mayodan, N. C.		589.6	88	677.6
Winston-Salem, N. C.		589.6	121	710.6
South Boston, Va.		642.2	64	706.2
Roxboro, N. C.		642.2	86	728.2
Durham, N. C.		642.2	117	759.2
FROM CHICAGO, ILL. TO:	A			
Martinsville, Va.		703.2	62	765.2
Mayodan, N. C.		703.2	88	791.2
Winston-Salem, N. C.		703.2	121	824.2
South Boston, Va.		755.8	64	819.8
Roxboro, N. C.		755.8	86	841.8
Durham, N. C.		755.8	117	872.8
FROM PEORIA, ILL. TO:	C			
Martinsville, Va.		740.0	62	802.0
Mayodan, N. C.		740.0	88	828.0
Winston-Salem, N. C.		740.0	121	861.0
South Boston, Va.		792.6	64	856.6
Roxboro, N. C.		792.6	86	878.6
Durham, N. C.		792.6	117	909.6

Tariff Rates to		Average Revenue Per Cwt-Mile to Branch Line Destination	Branch Line Proportion		Ratio-Branch Line Proportion of Thru Rate To Mileage Prorate
Roanoke-Lynchburg	Branch Destination		On Mileage Prorate	Of Thru Rate (G—F)	
f	g	h	i	j	k
		Third Class.			
70½c	103½c	0.1588c	9.84c	33.00c	
70½	113	0.1668	14.68	42.50	
70½	118	0.1661	20.10	47.50	
70½	103½	0.1466	9.38	33.00	
70½	113½	0.1559	13.41	43.00	
70½	118	0.1554	18.18	47.50	
91½c	120c	0.1568c	9.72c	28.50c	
91½	129	0.1630	14.34	37.50	
91½	129	0.1565	18.94	37.50	
91½	120	0.1464	9.37	28.50	
91½	129	0.1532	13.18	37.50	
91½	129	0.1479	17.30	37.50	
101c	122c	0.1521c	9.43c	21.00c	
101	130	0.1570	13.82	29.00	
101	130	0.1510	18.27	29.00	
101	122	0.1424	9.11	21.00	
101	130	0.1480	12.73	29.00	
101	130	0.1429	16.72	29.00	

Sheet 3 of 4

Origins and Branch Line Destinations	Route Reference	Tariff Route Miles to Branch Line Jct.	Tariff Route Miles to On Branch Line	Tariff Route Miles to Total
a	b	c	d	e
FROM BURLINGTON, IA. TO:	B			
Martinsville, Va.		832.5	62	894.5
Mayodan, N. C.		832.5	88	920.5
Winston-Salem, N. C.		832.5	121	953.5
South Boston, Va.		885.1	64	949.1
Roxboro, N. C.		885.1	86	971.1
Durham, N. C.		885.1	117	1,002.1
FROM CLEVELAND, OHIO TO:	F			
Martinsville, Va.		547.0	62	609.0
Mayodan, N. C.		547.0	88	635.0
Winston-Salem, N. C.		547.0	121	668.0
South Boston, Va.		599.6	64	663.6
Roxboro, N. C.		599.6	86	685.6
Durham, N. C.		599.6	117	716.6
FROM INDIANAPOLIS, IND. TO:	D			
Martinsville, Va.		585.5	62	647.5
Mayodan, N. C.		585.5	88	673.5
Winston-Salem, N. C.		585.5	121	706.5
South Boston, Va.		581.1	64	645.1
Roxboro, N. C.		581.1	86	667.1
Durham, N. C.		581.1	117	698.1
Total of Class				

Tariff Rates to		Average Revenue Per Cwt-Mile to Branch Line Destination	Branch Line Proportion		Ratio-Branch Line Proportion of Thru Rate To Mileage Prorate
Roanoke-Lynchburg	Branch Destination		On Mileage Prorate	Of Thru Rate (G—F)	
f	g	h	i	j	k
			Third Class.		
107½c	129c	0.1442c	8.94c	21.50c	
107½	137	0.1488	13.09	29.50	
107½	137	0.1437	17.39	29.50	
107½	129	0.1359	8.70	21.50	
107½	137	0.1411	12.13	29.50	
107½	137	0.1367	15.99	29.50	
70c	101c	0.1658c	10.28c	31.00c	
70	109	0.1717	15.11	39.00	
70	109	0.1632	19.75	39.00	
70	101	0.1522	9.74	31.00	
70	109	0.1590	13.67	39.00	
70	109	0.1521	17.80	39.00	
85c	105c	0.1622c	10.06c	20.00c	
85	113	0.1678	14.77	28.00	
85	113	0.1599	19.35	28.00	
85	105	0.1628	10.42	20.00	
85	113	0.1694	14.57	28.00	
85	113	0.1619	18.94	28.00	
			499.22c	1,142.50c	228.86%

Sheet 3 of 4

Origins and Branch Line Destinations	Route Reference	Tariff Route Miles to Branch Line Jct.	On Branch Line	Total
a	b	c	d	e
FROM DETROIT, MICH. TO	E			
Martinsville, Va.		589.6	62	651.6
Mayodan, N. C.		589.6	88	677.6
Winston-Salem, N. C.		589.6	121	710.6
South Boston, Va.		642.2	64	706.2
Roxboro, N. C.		642.2	86	728.2
Durham, N. C.		642.2	117	759.2
FROM CHICAGO, ILL. TO:	A			
Martinsville, Va.		703.2	62	765.2
Mayodan, N. C.		703.2	88	791.2
Winston-Salem, N. C.		703.2	121	824.2
South Boston, Va.		755.8	64	819.8
Roxboro, N. C.		755.8	86	841.8
Durham, N. C.		755.8	117	872.8
FROM PEORIA, ILL. TO:	C			
Martinsville, Va.		740.0	62	802.0
Mayodan, N. C.		740.0	88	828.0
Winston-Salem, N. C.		740.0	121	861.0
South Boston, Va.		792.6	64	856.6
Roxboro, N. C.		792.6	86	878.6
Durham, N. C.		792.6	117	909.6
FROM BURLINGTON, IA. TO:	B			
Martinsville, Va.		832.5	62	894.5
Mayodan, N. C.		832.5	88	920.5
Winston-Salem, N. C.		832.5	121	953.5
South Boston, Va.		885.1	64	949.1
Roxboro, N. C.		885.1	86	971.1
Durham, N. C.		885.1	117	1,002.1

Tariff Rates to		Average Revenue Per Cwt-Mile to Branch Line Destination	Branch Line Proportion		Ratio-Branch Line Proportion of Thru Rate To Mileage Prorate
Roanoke-Lynchburg	Branch Destination		On Mileage Prorate	Of Thru Rate (M—L)	
l	m	n	o	p	q
		Fourth Class.			
48½c	73½c	0.1128c	6.99c	25.00c	
48½	79½	0.1173	10.32	31.00	
48½	84	0.1182	14.30	35.50	
48½	73½	0.1041	6.66	25.00	
48½	82½	0.1133	9.74	34.00	
48½	84	0.1106	12.94	35.50	
63c	88c	0.1150c	7.13c	25.00c	
63	94	0.1188	10.45	31.00	
63	98½	0.1195	14.46	35.50	
63	88	0.1073	6.87	25.00	
63	97	0.1152	9.91	34.00	
63	98½	0.1128	13.20	35.50	
69½c	94½c	0.1178c	7.30c	25.00c	
69½	100½	0.1214	10.68	31.00	
69½	102	0.1185	14.34	32.50	
69½	94½	0.1103	7.06	25.00	
69½	102	0.1161	9.98	32.50	
69½	102	0.1121	13.12	32.50	
74c	99c	0.1107c	6.86c	25.00c	
74	105	0.1141	10.04	31.00	
74	108	0.1133	13.71	34.00	
74	99	0.1119	7.16	25.00	
74	108	0.1112	9.56	34.00	
74	108	0.1078	12.61	34.00	

Sheet 3 of 4

Origins and Branch Line Destinations	Route Reference	Tariff Route Miles to Branch Line Jct.	Tariff Route Miles to On Branch Line	Total
a	b	c	d	e
FROM CLEVELAND, OHIO TO:	F			
Martinsville, Va.		547.0	62	609.0
Mayodan, N. C.		547.0	88	635.0
Winston-Salem, N. C.		547.0	121	668.0
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Durham, N. C.		599.6	117	716.6
FROM INDIANAPOLIS, IND. TO:	D			
Martinsville, Va.		585.5	62	647.5
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Winston-Salem, N. C.		585.5	121	706.5
South Boston, Va.		581.1	64	645.1
Roxboro, N. C.		581.1	86	667.1
Durham, N. C.		581.1	117	698.1
Total of Class				

Tariff Rates to		Average Revenue Per Cwt-Mile to Branch Line Destination	Branch Line Proportion		Ratio-Branch Line Proportion of Thru Rate To Mileage Prorate
Roanoke-Lynchburg	Branch Destination		On Mileage Prorate	Of Thru Rate (M—L)	
l	m	n	o	p	q
			Fourth Class		
48c	73c	0.1199c	7.43c	25.00c	
48	79	0.1244	10.95	31.00	
48	83½	0.1250	15.13	35.50	
48	73	0.1100	7.04	25.00	
48	82	0.1196	10.29	34.00	
48	83½	0.1165	13.63	35.50	
58½c	83c	0.1282c	7.95c	24.50c	
58½	89	0.1321	11.62	30.50	
58½	89	0.1260	15.25	30.50	
58½	83	0.1287	8.24	24.50	
58½	89	0.1334	11.47	30.50	
58½	89	0.1275	14.92	30.50	
			379.31c	1,090.50c	287.50%

Exhibit No._____
Witness: Roberts, J. W.
(Maker's Exhibit No. R-10)
Sheet No. 4 of 4 sheets.

Concerning the Relative Levels of Rates on the N&W Branches Serving North Carolina Versus Remainder of System.

Comparison of Branch Line Proportion of First to Sixth Class Rates on Mileage Prorate Basis, With Branch Line Proportion of Through Rates.

Origins and Branch Line Destinations	Route Reference	Tariff Route Miles to Branch Line Jct.	Tariff Route Miles to On Branch Line	Tariff Route Miles to Total
a	b	c	d	e
FROM DETROIT, MICH. TO	E			
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South Boston, Va.		642.2	64	706.2
Roxboro, N. C.		642.2	86	728.2
Durham, N. C.		642.2	117	759.2
FROM CHICAGO, ILL. TO:	A			
Martinsville, Va.		703.2	62	765.2
Mayodan, N. C.		703.2	88	791.2
Winston-Salem, N. C.		703.2	121	824.2
South Boston, Va.		755.8	64	819.8
Roxboro, N. C.		755.8	86	841.8
Durham, N. C.		755.8	117	872.8
FROM PEORIA, ILL. TO:	C			
Martinsville, Va.		740.0	62	802.0
Mayodan, N. C.		740.0	88	828.0
Winston-Salem, N. C.		740.0	121	861.0
South Boston, Va.		792.6	64	856.6
Roxboro, N. C.		792.6	86	878.6
Durham, N. C.		792.6	117	909.6

Tariff Rates to		Average Revenue Per Cwt-Mile to Branch Line Destination	Branch Line Proportion		Ratio-Branch Line Proportion of Thru Rate To Mileage Prorate
Roanoke-Lynchburg	Branch Destination		On Mileage Prorate	Of Thru Rate (G—F)	
f	g	h	i	j	k
		Fifth Class			
41c	63½c	0.0970c	6.01c	22.50c	
41	66	0.0974	8.57	25.00	
41	70½	0.0992	12.00	29.50	
41	63½	0.0899	5.75	22.50	
41	68	0.0934	8.03	27.00	
41	70½	0.0929	10.87	29.50	
53½c	76c	0.0993c	6.16c	22.50c	
53½	78½	0.0992	8.73	25.00	
53½	83	0.1007	12.18	29.50	
53½	76	0.0927	5.93	22.50	
53½	80½	0.0956	8.22	27.00	
53½	83	0.0951	11.13	29.50	
59c	78c	0.0973c	6.03c	19.00c	
59	84	0.1014	8.92	25.00	
59	84	0.0976	11.81	25.00	
59	78	0.0911	5.83	19.00	
59	84	0.0956	8.22	25.00	
59	84	0.0923	10.80	25.00	

Origins and Branch Line Destinations	Route Reference	Tariff Route Miles to Branch Line Jct.	Tariff Route Miles to On Branch Line	Tariff Route Miles to Total
a	b	c	d	e
FROM BURLINGTON, IA. TO:	B			
Martinsville, Va.		832.5	62	894.5
Mayodan, N. C.		832.5	88	920.5
Winston-Salem, N. C.		832.5	121	953.5
South Boston, Va.		885.1	64	949.1
Roxboro, N. C.		885.1	86	971.1
Durham, N. C.		885.1	117	1,002.1
FROM CLEVELAND, OHIO TO:	F			
Martinsville, Va.		547.0	62	609.0
Mayodan, N. C.		547.0	88	635.0
Winston-Salem, N. C.		547.0	121	668.0
South Boston, Va.		599.6	64	663.6
Roxboro, N. C.		599.6	86	685.6
Durham, N. C.		599.6	117	716.6
FROM INDIANAPOLIS, IND. TO:	D			
Martinsville, Va.		585.5	62	647.5
Mayodan, N. C.		585.5	88	673.5
Winston-Salem, N. C.		585.5	121	706.5
South Boston, Va.		581.1	64	645.1
Roxboro, N. C.		581.1	86	667.1
Durham, N. C.		581.1	117	698.1
Total of Class				

Tariff Rates to		Average Revenue Per Cwt-Mile to Branch Line Destination	Branch Line Proportion		Ratio-Branch Line Proportion of Thru Rate To Mileage Prorate
Roanoke-Lynchburg	Branch Destination		On Mileage Prorate	Of Thru Rate (G—F)	
f	g	h	i	j	k
		Fifth Class.			
63c	83c	0.0928c	5.75c	20.00c	
63	88	0.0956	8.41	25.00	
63	88	0.0923	11.17	25.00	
63	83	0.0875	5.60	20.00	
63	88	0.0906	7.79	25.00	
63	88	0.0878	10.27	25.00	
40½c	63c	0.1034c	6.41c	22.50c	
40½	65½	0.1031	9.07	25.00	
40½	70	0.1048	12.68	29.50	
40½	63	0.0949	6.07	22.50	
40½	67½	0.0985	8.47	27.00	
40½	70	0.0977	11.43	29.50	
49½c	68c	0.1050c	6.51c	18.50c	
49½	73	0.1084	9.54	23.50	
49½	73	0.1033	12.50	23.50	
49½	68	0.1054	6.75	18.50	
49½	73	0.1094	9.41	23.50	
49½	73	0.1046	12.24	23.50	
			315.26c	877.00c	278.18%

Sheet 4 of 4

Origins and Branch Line Destinations	Route Reference	Tariff Route Miles to Branch Line Jct.	Tariff Route Miles to On Branch Line	Tariff Route Miles to Total
a	b	c	d	e
FROM DETROIT, MICH. TO	E			
Martinsville, Va.		589.6	62	651.6
Mayodan, N. C.		589.6	88	677.6
Winston-Salem, N. C.		589.6	121	710.6
South Boston, Va.		642.2	64	706.2
Roxboro, N. C.		642.2	86	728.2
Durham, N. C.		642.2	117	759.2
FROM CHICAGO, ILL. TO:	A			
Martinsville, Va.		703.2	62	765.2
Mayodan, N. C.		703.2	88	791.2
Winston-Salem, N. C.		703.2	121	824.2
South Boston, Va.		755.8	64	819.8
Roxboro, N. C.		755.8	86	841.8
Durham, N. C.		755.8	117	872.8
FROM PEORIA, ILL. TO:	C			
Martinsville, Va.		740.0	62	802.0
Mayodan, N. C.		740.0	88	828.0
Winston-Salem, N. C.		740.0	121	861.0
South Boston, Va.		792.6	64	856.6
Roxboro, N. C.		792.6	86	878.6
Durham, N. C.		792.6	117	909.6
FROM BURLINGTON, IA. TO:	B			
Martinsville, Va.		832.5	62	894.5
Mayodan, N. C.		832.5	88	920.5
Winston-Salem, N. C.		832.5	121	953.5
South Boston, Va.		885.1	64	949.1
Roxboro, N. C.		885.1	86	971.1
Durham, N. C.		885.1	117	1,002.1

Tariff Rates to		Average Revenue Per Cwt-Mile to Branch Line Destination	Branch Line Proportion		Ratio-Branch Line Proportion of Thru Rate To Mileage Prorate
Roanoke-Lynchburg	Branch Destination		On Mileage Prorate	Of Thru Rate (M—L)	
l	m	n	o	p	q
		Sixth Class.			
34c	50c	0.0767c	4.76c	16.00c	
34	56½	0.0834	7.34	21.50	
34	58½	0.0823	9.96	24.50	
34	50	0.0708	4.53	16.00	
34	55½	0.0762	6.55	22.50	
34	58½	0.0771	9.02	24.50	
44½c	60½c	0.0791c	4.90c	16.00c	
44½	66	0.0834	7.34	21.50	
44½	69	0.0837	10.13	24.50	
44½	60½	0.0738	4.72	16.00	
44½	67	0.0796	6.85	22.50	
44½	69	0.0791	9.25	24.50	
49½c	65½c	0.0817c	5.07c	16.00c	
49½	71	0.0857	7.54	21.50	
49½	74	0.0859	10.39	24.50	
49½	65½	0.0765	4.90	16.00	
49½	72	0.0819	7.04	22.50	
49½	74	0.0814	9.52	24.50	
52½c	68½c	0.0766c	4.75c	16.00c	
52½	74	0.0804	7.08	21.50	
52½	77	0.0808	9.78	24.50	
52½	68½	0.0722	4.62	16.00	
52½	75	0.0772	6.64	22.50	
52½	77	0.0768	8.99	24.50	

Origins and Branch Line Destinations	Route Reference	Tariff Route Miles to Branch Line Jct.	Tariff Route Miles to On Branch Line	Tariff Route Miles to Total
a	b	c	d	e
FROM CLEVELAND, OHIO TO:	F			
Martinsville, Va.		547.0	62	609.0
Mayodan, N. C.		547.0	88	635.0
Winston-Salem, N. C.		547.0	121	668.0
South Boston, Va.		599.6	64	663.6
Roxboro, N. C.		599.6	86	685.6
Durham, N. C.		599.6	117	716.6
FROM INDIANAPOLIS, IND. TO:	D			
Martinsville, Va.		585.5	62	647.5
Mayodan, N. C.		585.5	88	673.5
Winston-Salem, N. C.		585.5	121	706.5
South Boston, Va.		581.1	64	645.1
Roxboro, N. C.		581.1	86	667.1
Durham, N. C.		581.1	117	698.1
Total of Class				

TARIFF ROUTES:

A—From Chicago—C&O Cincinnati, N&W beyond.
B—From Burlington—CB&Q Monmouth, M&StL Peoria, CCC&StL Cincinnati, N&W beyond.
C—From Peoria—CCC&StL Cincinnati, N&W beyond.
D—From Indianapolis—CCC&StL Cincinnati, N&W beyond.
E—From Detroit—NYC Toledo, HV Columbus, N&W beyond.
F—From Cleveland—CCC&StL Columbus, N&W beyond.

TARIFF AUTHORITY FOR RATES:

C. W. Galligan's No. 15, I. C. C. 110; B. T. Jones' I. C. C. 2294.

AUTHORITY FOR DISTANCES:

CCC&StL I. C. C. 8515; C&O I. C. C. 11081; N&W I. C. C. 8377; NYC I. C. C. LS 1536; CB&Q I. C. C. 17392; M&StL I. C. C. B402.

Tariff Rates to		Average Revenue Per Cwt-Mile to Branch Line Destination	Branch Line Proportion		Ratio-Branch Line Proportion of Thru Rate To Mileage Prorate
Roanoke-Lynchburg	Branch Destination		On Mileage Prorate	Of Thru Rate (M—L)	
l	m	n	o	p	q
		Sixth Class.			
33½c	49½c	0.0813c	5.04c	16.00c	
33½	55	0.0866	7.62	21.50	
33½	58	0.0868	10.50	24.50	
33½	49½	0.0746	4.77	16.00	
33½	56	0.0817	7.03	22.50	
33½	58	0.0809	9.47	24.50	
41c	57c	0.0880c	5.46c	16.00c	
41	62½	0.0928	8.17	21.50	
41	65	0.0920	11.13	24.50	
41	57	0.0884	5.65	16.00	
41	63½	0.0952	8.19	22.50	
41	65	0.0931	10.89	24.50	
			265.59c	750.00c	282.39%

Sheet 1 of this exhibit being a summary we should first examine sheets 2, 3, and 4. On sheet 2 are shown first and second-class, on sheet 3, the third and fourth-class, and on sheet 4 the fifth and sixth-class rates, respectively.

(62) Column A of these sheets shows the six points of origin, which are: Detroit, Michigan; Chicago, Illinois; Peoria, Illinois; Burlington, Iowa; Cleveland, Ohio; and Indianapolis, Indiana. From these originating points the rates under each of the six classes are shown to eight different destinations, six of which are on the branch lines, and two of which are the junction points at which the branches leave the main line, that is to say, Roanoke, Va., and Lynchburg, Va. The six branch line destinations are shown immediately below the origin point in Column A, but the rates to the junction points are shown in Columns F and G. The six branch line destinations are Martinsville, Va., Mayodan, N. C., and Winston-Salem, N. C., on the Winston-Salem Branch, and South Boston, Va., Roxboro, N. C., and Durham, N. C., on the Durham Branch. The destinations are the principal towns on the branch lines, and as to location are fairly spaced along each branch line.

Column B shows routes over which the rates apply. The routes are detailed in a footnote on sheet 4. Column C shows the tariff route mileage to the junction point, which is Roanoke, Va., in the one case and Lynchburg, Va., in the other. The miles from the junction to the branch line destination are shown in Column D. The total route mileage is shown in Column E. The effective tariff rate to the junction point is shown in Column F. The rates of each class being common to all so-called "Virginia Cities," the same rate applies to both Roanoke and Lynchburg. The tariff rate through to the branch line destination is shown in Column G. In Column H is shown the average revenue per hundred-weight mile to

the branch line destination in each case, which is the quotient of the rate in Column G divided by the miles in Column E. In the next two columns appear the branch line proportions of the rate. In Column I is the mileage prorate expressed in cents per hundredweight. This figure is the product of the number of branch line miles shown in Column D times the average revenue per cwt-mile shown in Column H. In Column J is the branch (63) line proportion of the through rate, which is the difference between the through rate shown in Column G and the rate to the junction (Roanoke or Lynchburg, as the case may be) which is shown in Column F. It is also expressed in cents per cwt. Columns I and J are footed to the last line of each page, and on that line in Column K is shown the percentage relationship of the branch line proportion of the rate, or in other words, the additional charge assessed for the movement beyond the branch line junction, to the proportion of the rate assignable to the branch lines on a mileage prorate basis.

Similar information concerning the next inferior class is shown in Columns L to Q, respectively.

On sheets 2, 3 and 4 of this exhibit there are 216 rates to branch line destinations compared with rates from the same origins, on the same class of traffic, having identically the same movement to the branch line junctions.

From Columns K and Q on the three sheets it will be noted that the revenue actually derived from the haul over the branch lines in excess of that derived for haul over the same route to the main line junction point with the branch line, is in every case greater than the proportion of the total revenue assignable to the branch line on a mileage prorate basis. The ratio of the revenue actually earned on the branch line to the mileage prorate is in the case of each class as follows:

First Class	261.45%
Second Class	174.24%
Third Class	228.86%
Fourth Class	287.50%
Fifth Class	278.18%
Sixth Class	282.39%

Now the effectiveness of these individual class ratios, the least of which is 174.24% and the greatest 287.50%, upon the aggregate gross revenue depends, of course, upon the volume of traffic moving under each class. As I have previously explained we have the most meagre information bearing upon that point. In fact we have no information which relates to the business handled by the (64) Railway over these branches during the years 1927, 1928 and 1929. The best light we have on that point is supplied by certain special studies of class-rated traffic moving at other times and over other railroads. In connection with the Interstate Commerce Commission's Southern Class Rate Investigation previously alluded to, some studies were made by Southern roads during the month of July, 1922, and November, 1922, and during the year 1924, the results of which are given in the commission's decision of that case (100 ICC 513) as published. In connection with ICC Docket I&S No. 3000-Cancellation of commodity rates on sewer pipe in CFA territory, another study was made by the Central Freight Association of Chicago which is contained in Exhibit No. 187, Witness S. J. Witt, on file in that case, a copy of the summary of which is contained among my exhibits (See Sheet 2 of Maker's Exhibit No. R-9). These two studies, one of which is in Southern and the other in Official territory, disclose the relative volume of the class-rated traffic moving under the respective classes during the test periods. From these sources I have taken the

data relating to classes first to sixth, and have related the volume (as represented by the tonnage) moving under each of classes first to sixth to the total for all of those classes. On Sheet 1 of this Exhibit R-10 I have applied to the class comparisons shown on sheets 2 to 4 the weights disclosed by these studies, in an effort to ascertain approximately what the average ratio of the branch line earnings would be to the mileage prorate of the total earnings.

In the upper section of sheet 1 may be found the results of weighting the average branch line apportionments on the respective bases using the relative class volumes developed by all of the Southern Territory traffic tests. For the six classes combined this gives an average ratio of 247.82%. In the lower section of the exhibit on sheet 1 the showings of the Official territory test are also used to weight the ratios shown on sheets 2 to 4, and this gives an average of 265.25%. In the (65) event each class carried the same amount of traffic as every other class in first to sixth, or in other words, using the simple average, the figure is 252.04%. From this it may be seen that the weighting does not affect materially the impression given by a consideration of the simple average.

On my Exhibit R-9 previously discussed, the actual gross earnings on 7269 carloads of class-rated traffic moving in Official Territory, (of which the Railway's main lines are a part) are related to gross earnings which would result if that same traffic were moved from Roanoke to Lynchburg southward over the branches at arbitraries published for use in constructing through rates not otherwise published. In that case, the branch line arbitraries would produce 298.21% of the average revenue per net ton-mile actually earned in official territory. The 265.25% shown in the lower section of sheet 1 of

this Exhibit R-10 is akin to the 298.21%, but is less for the reason that in the case of this Exhibit R-10 the branch line arbitraries exert their effect only when they are actually embodied in the effective and applicable rate. In the case of this Exhibit R-10 the through rates to branch line destinations are in some instances combinations on the Ohio River crossing gateways, which is generally true of the rates from Chicago, Burlington, Ia., Peoria, Ill., and Indianapolis, Ind. Only the rates from Detroit and Cleveland which apply to routes using the Railway's line from Columbus are invariably affected by the arbitraries from the Virgina Cities southward. The through rates based on combinations via the Ohio River gateway being lower than combinations employing the branch line arbitraries, the former prevail. The difference in the showing of Exhibits R-9 and R-10 is thus explained.

The extension of the system of through class rates has not, as might be assumed, obviated the use of these branch line arbitraries, because the tariffs contain provisions that the lowest published rate is the one which prevails.

(66) The use of the branch line arbitraries in conjunction with rates to the Virginia Cities as yardsticks for measuring the reasonableness of through class rates would seem to lend added significance to Exhibit R-9. It seems reasonable to infer, under the circumstances, that they actually represent the recognized level of charges which shou'd prevail for transportation on the branch lines. They are the ramp which connects the lower class rate level of Official Territory with the higher level of Southern Territory.

One aspect of the class rate situation as it bears upon the gross revenues of the branch lines serving North Carolina is that the class rate levels in Southern Classification Territory were affected by the Southern class

rate adjustment which became effective January 15, 1928. This adjustment had the effect generally of increasing the class rates in Southern territory, and this increase is reflected in the presently effective rates to points on the North Carolina branches. The first-class rate from Cincinnati to Winston-Salem and Durham, for instance, was 120½ cents prior to January 15, 1928; thereafter it became 153 cents, which is 126.97% of the 120½ cents. The total of rates for classes first to sixth from Cincinnati to the North Carolina branch line termini was 460½ cents prior to January 15, 1928, and 604 cents thereafter, the latter being 131.27% of the former. Prior to January 15, 1928, the first-class through rate from Cincinnati to the Virginia Cities, including Roanoke and Lynchburg, was 120½ cents, and on first-class the same rate applied to both Winston-Salem and Durham. For the other classes, however, the rates to the Carolina cities mentioned were somewhat higher from Cincinnati. The total of classes second to sixth inclusive to Winston-Salem and Durham was 340 cents and to Roanoke and Lynchburg 323.5 cents, the former being 105.11% of the latter. Considering the first-class rate also the relationship for all rates classes first to sixth was 103.72% in favor of the branch lines North Carolina termini, prior to January 15, 1928.

(67) From Cincinnati to Roanoke and Lynchburg the first-class rate of 120½ cents held until after December 31, 1929, which was the end of the period with which we are here concerned. The Eastern Class Rate adjustment which lowered that rate to 102 cents and rates for the subordinate classes in approximately the same ratio, did not become effective until December 3, 1931. Consequently it does not affect the situation here involved, and that reduction of the main line class-rate levels is not reflected by any of my exhibits.

Consider for a moment longer the class rates from Cincinnati to the respective ends of the Winston-Salem and Durham branches, which have been effective (save for fifteen days) during the last two years of the three years here involved: The movement which these rates cover are local to the line of the Railway. It retains all of the revenue. The average distance from Cincinnati to the branch line junctions is 445 miles, and to their southern termini 564 miles, the average branch line haul being 119 miles. The sum of the rates first to sixth to Winston-Salem and Durham (the rates being common to both) is 604 cents, and if we divide this by the averaged route mileage, 564 miles, the yield is 1.070922 cents per cwt-mile. For the 119 miles of branch line haul the proportion would be (119 x 1.070922) 127.44 cents, which is the mileage prorate. The sum of the first to sixth rates to the junction points, Roanoke and Lynchburg, however, is 444 cents, and the spread between that figure and the 604 sum total of the rates to the southern termini of the branches is 160 cents. This 160 cents is 125.53% of the 127.44 cents representing the mileage prorate, measured in this way, so that the additional charge made for the branch line haul which should be accredited to branch lines' earnings appears as 25.55% greater than the mileage prorate. It must be remembered, however, that this method of measurement is not fair to the branch lines, and that the difference between the amount which should be accredited to the branches and the mileage prorate is much more than 25.55%. This is true because (68) the rates to Roanoke-Lynchburg contemplate and include compensation for two terminal handlings, one at origin and one at delivery. The rates to Winston-Salem-Durham also include two terminal handlings. The branch line proportion of the through rate, measured by the charge assessed for hauls to Roanoke-Lynchburg is not

the difference between the rates to the respective points, but rather the difference between the through rate and the Roanoke-Lynchburg rate less the amount included therein for one terminal handling. In other words, under the through rate the main line section of the road performs one terminal service and the branch line section the other, and each section should be allowed compensation only for the service it renders. On this basis the relationship would be materially changed, and a substantially greater amount would accrue to the branch lines. We have no accurate means of subdividing the rates as between the terminal and line haul elements. Taking the mileage scale prescribed by the Interstate Commerce Commission as the premise for the revised southern class rates, we find that the sum of the first to sixth class rates for hauls of 5 miles and under is 131 cents, and for the first ten miles and over 5 miles, is 141 cents, signifying a 10 cent allowance for five miles haul. Deducting this 10 cents from the first sum of 131 cents leaves 121 cents for the two terminal services which every rate contemplates. Dividing this 121 cents by 2 gives 60½ cents as the approximate allowance included in the first to sixth class rates for a single terminal service. If we deduct this 60½ cents from the 444 cents which is the sum of the six rates to Roanoke-Lynchburg, it leaves 383½ cents for the original terminal service and the line haul to Roanoke-Lynchburg. Deducting this 383½ cents from the sum of the rates to Winston-Salem-Durham, 604 cents, leaves 220½ cents as the branch lines proportion for 119 miles of line haul and a delivery terminal service. The 383½ cents accruing up to the (69) junctions for an average haul of 445 miles is the equivalent of 0.861798 cents per cwt-mile; the 220½ cents accruing to the branch lines for an average haul of 119 miles is the equivalent of 1.852942 cents per cwt-

mile, and the ratio of the latter to the former is 215.01%, which is a more reliable indication than the 125.55% of the revenue earned on the branches as compared with the mileage prorate of the total revenue.

It is to be understood, however, that the through rates from Cincinnati to the respective ends of the branches do not necessarily typify the results of comparing through rates effective from other points on or off of the lines of the Railway's system. While the class rates observe with more or less fidelity basic mileage scales, they do not in all cases adhere to them. Effective rates depart from mileage scales out of respect to the manner in which they are constructed. In some cases they are adjusted on account of competitive and other conditions. A survey of the general situation seems to indicate, however, that the through rates from Cincinnati supply a comparison which is among those least favorable to the branch lines' earnings as they relate to those of the main line sections of the Railway.

The Railway's rates from Cincinnati to Winston-Salem and Durham are depressed as the result of competitive influence. Winston-Salem and Durham are intermediate points on the through route via Southern-L. & N. from the Ohio River Crossings to Norfolk and other South Atlantic ports. On business from the Ohio River gateways the Railway is obliged to meet the competition of the Southern Railway at both Winston-Salem and Durham. As a consequence its rates from Cincinnati to those points are on a somewhat lower basis than its rates from other territories via routes through Columbus, Hagerstown, or other junctions which base over the Virginia Cities rather than Ohio River Crossings. For this general reason it seems safe to say that the Cincinnati rates

provide allowances for the branch line hauls which are among the lowest of the allowances made therefor.

(70) To points east of Portsmouth, Ohio, the distances from Columbus and Cincinnati differ to the extent of only 9 miles, but on southbound business originating at Columbus and destined to points to which rates are published from Cincinnati, the Columbus rates carry differentials over the Cincinnati rates of 14½, 12½, 11½, 9½, 8, and 6½ cents for classes first to sixth respectively. This supports the statement that Cincinnati rates to the branch line destinations are relatively low.

In general the class rates from Central Freight Association territory to southeastern destinations, during the three years dealt with here, were combination rates. On inter-line business the carriers north and west of the Ohio River kept the revenue earned to the river, and the carriers south and east of the Ohio kept the revenue earned south of the river. On business moving through the Cincinnati gateway, therefore, the relationship of the main and branch line earnings from the Cincinnati rates would control in a division of the revenue between the Railway's main lines and the branches serving North Carolina. With respect to Columbus gateway business, however, as well as business reaching the Railway's line from Eastern Trunk Line Territory, a different condition would obtain, and its effect is suggested by rates based on the Virginia Cities which provide even a greater proportion of the revenue for the branch line hauls.

(71) Gross Revenues Derived From Commodity Rates.

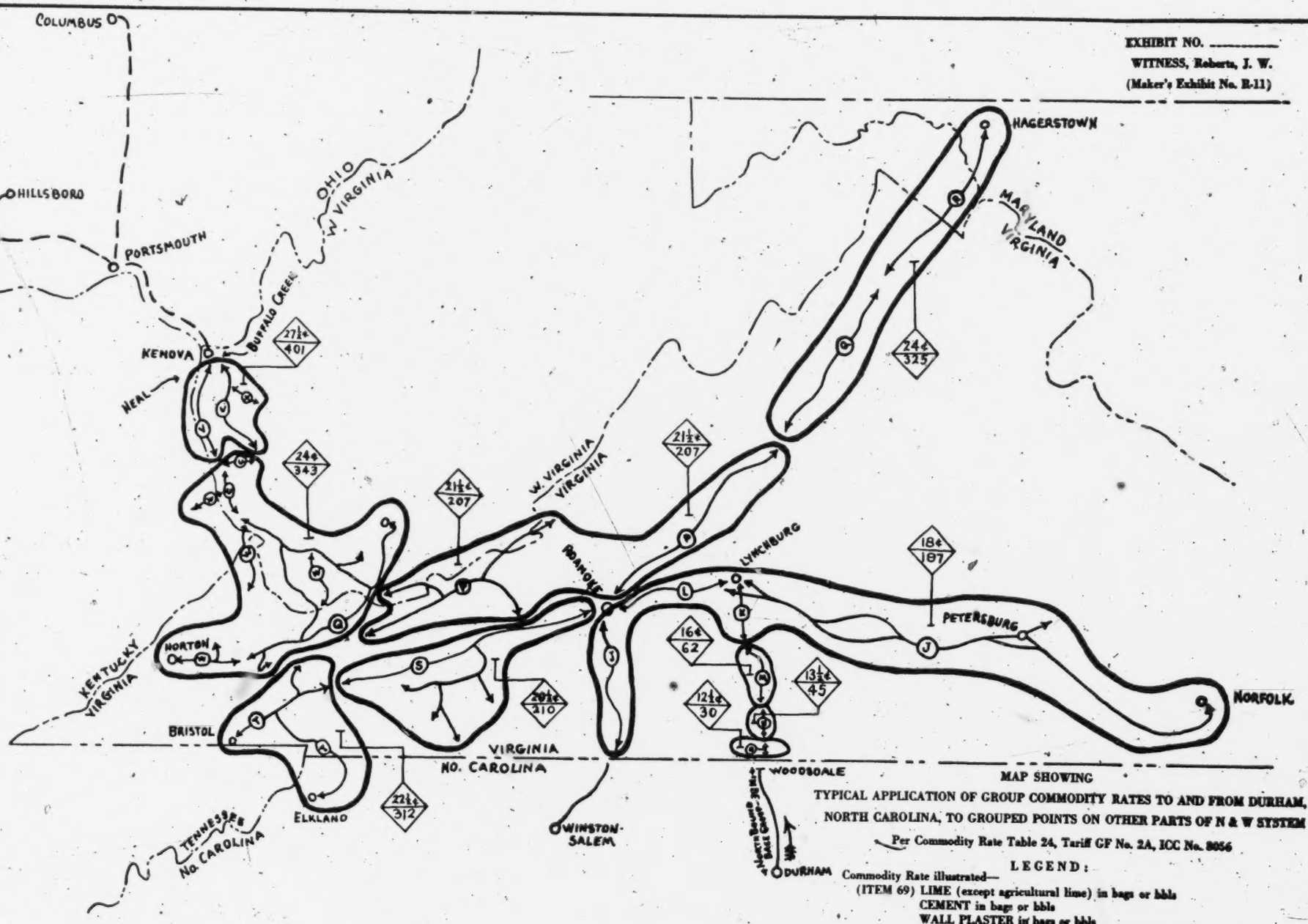
It is a general claim of the railroads operating in Southern Territory that the higher level at which class

rates are established in Southern as compared with Official territory, is not indicative of the relative levels of all rates in the two territories on traffic other than coal and coke. They claim this is due to the many commodity rates prevailing in Southern territory which are on a lower level than rates applying in Official territory under like circumstances. It is also claimed that Commodity Rates move a very substantial portion of Southern traffic. In the Southern Class Rate Investigation by the Interstate Commerce Commission, the roads claimed that about 20% of merchandise traffic moved under class rates, which would leave about 80% to move under Commodity and other rates.

I have been attentive to this general claim in my consideration of this matter. Commodity rates are generally lower than Class Rates, and when both kinds of rates are published for the same movement the Commodity Rates prevail.

It is a most difficult matter, I find, to make a reasonably satisfactory comparison of commodity rates between the main line and branch line points. One difficulty is to determine, from such records as are available, the particular kind of traffic which actually moves over the branches under commodity rates which may lend themselves to purposes of comparison. Commodity rates prevailing in the territory served by the branches are generally predicated on a group to group basis. Granting there is movement touching North Carolina of commodity rated traffic between such groups, the comparison sought is particularly difficult because of the fact that the groups lying in North Carolina are quite constricted as compared with those lying at the other end of the movement. The unequal hauls prohibit fair comparisons of the yield of rates assessed over main and

EXHIBIT NO. _____
WITNESS, Roberts, J. W.
(Maker's Exhibit No. R-11)



MAP SHOWING

TYPICAL APPLICATION OF GROUP COMMODITY RATES TO AND FROM DURHAM, NORTH CAROLINA, TO GROUPED POINTS ON OTHER PARTS OF N & W SYSTEM

Per Commodity Rate Table 24, Tariff GF No. 2A, ICC No. 8056

LEGEND:

Commodity Rate illustrated—
(ITEM 69) LIME (except agricultural lime) in bags or bbls
CEMENT in bags or bbls
WALL PLASTER in bags or bbls
Carloads and Mixed carloads, Minimum weight 40000 lbs

RATE PER CWT From/To Durham-Woodsdale, NC, Station Group..... 18¢ 236
AVERAGE MILES HAUL between Station Groups.....
STATION GROUP, per tariff, ... 37

branch lines because the terminal element of the rate cannot be segregated and therefore prevents fair com-
(72) parisons when hauls vary in length. As far as I have been able to analyze the situation, however, it appears that the high costs of operation on the branch lines serving North Carolina have also been recognized in fixing the levels of commodity rates applicable over the branches.

My next exhibit is a map, which bears the title:

(MAKER'S EXHIBIT No. R-11)

Map Showing
Typical Application of Group Commodity Rates To and From Durham, N. C., to Grouped Points on Other Parts of N. & W. System, Per Commodity Rate Table No, 24, Tariff GF 2-A, I. C. C. 8056.

On this exhibit I have undertaken to illustrate the manner in which commodity rates are made which apply to traffic which is known to move in some volume over the branches serving Winston-Salem and Durham.

On this map are outlined the principal lines of the Railway's system, and thereon, in different colors and by different conventions, are noted the station groups to which certain commodity rates apply on movements to and from the branch line points. To avoid complexities which would defeat the purpose of the exhibit, I have confined this illustration to a single group of commodities which embraces, in the particulars described in the legend of the exhibit, Lime, Cement, and Wall Plaster in carload lots. The tariff refers to these commodities as Commodity Group 69. The rates and specifications are covered by N. & W. Tariff GF No. 2-A, I. C. C. No. 8056, and which was effective from Au-

gust 9, 1926, to January 15, 1930, as amended ad interim.

(73) The rates dealt with on this exhibit are applicable solely to Interstate Commerce. They were effective during the years 1927, 1928, and 1929. While the exhibit deals with Durham rates, it may be understood that as respects Winston-Salem and other North Carolina points on that branch the situation is substantially the same. There is a slight difference in the rates to some of the groups, but the general levels are essentially the same. In the case of the Durham rates here depicted, the rates from station groups K and M are slightly lower southbound than northbound, but to avoid showing too much detail on the map I have omitted that indication. Otherwise the rates are the same in both directions.

On the map the station groups fixed by the tariff are shown in different colors and are marked with the designating letter in a circle. The station group to which the same rate per hundredweight applies from North Carolina stations between Durham and Woodsdale, both inclusive, have been encircled in purple, and the rate applicable thereto, together with the average haul, is shown in a diamond-shaped flag. The average haul is computed from a point midway between Durham and Woodsdale, which is the basing station group, to the mid-point in the destination group. For example, an 18-cent rate applies from any station, Durham to Woodsdale to any station on the lines outside of Carolina between Norfolk and Ridgeway, Virginia, which is the southernmost station in Virginia on the Winston-Salem Branch. The same 18-cent rate also applies to stations on the Durham Branch from Gladys northward to Lynchburg. Norfolk is 316 miles distant from Durham. It is the most distant point to which the 18-cent rate applies. Gladys, Virginia, is the station nearest to Durham to

which that rate applies. The difference between the mileage Norfolk and Gladys is (316-95) 221, and half that distance is 111 miles. To get the average of the haul under the 18-cent rate, to this 111 miles must be added the 95 miles, Durham to Gladys, less one-half the distance, Durham to Woodsdale, or 19 miles. Thus (74) 95 miles less 19 miles plus 111 miles gives 187 miles, which is shown as the average haul for the 18 cents. The distances shown in the other cases were computed in the same way.

The purpose of this exhibit is to exemplify the operative principle of group rates, and to show that the rates are actually made with the idea of producing more revenue for the haul through North Carolina, and for that matter, on the Durham Branch, than on other parts of the system to which the rates are applicable.

The theory and the principle of the grouped rate is that the rate is normal for the average distance, is abnormal for hauls which are shorter than the average, and is subnormal for hauls which are longer than the average.

A glance at this map will disclose the fact that under these rates the blanketed station groups are longer, and the revenue accrual per mile of haul is less, and materially so, on the system beyond the Durham Branch. On the branch, for example, the 30-mile average haul to station Group O, which is the first group outside of North Carolina, has a 12½c rate, which increases 1c to 13½c for the next 15-mile block, 2½c for the next 17-mile block, and for the next 125 miles through stations groups J, K, and L it increases 2c to 18 cents for an average haul of 187 miles. For an average haul of 210 miles on the Bristol line the rate is 20½c, and on the Roanoke-Bluefield district it is 1c more for an average haul of 3 miles less. On the Pocahontas Division north and west

of Bluefield the rate is 24c for an average haul of 343 miles, and on the Scioto Division south of Kenova it reaches the maximum of 27½c for an average haul of 401 miles. After reaching the main lines of the system the rates flatten out, so to speak. The same rate accommodates a larger number of stations dispersed throughout a greater area, and more service is performed for less money than on the branch lines, even though allowance be made for the effect which terminal services have upon the rate applying to short hauls. In the Southern class rate decision (100 I. C. C. 513) the Interstate Com-
(75) merce Commission found that when rates had a station group base on the northern end of the route, comprehending, for example, the line of Virginia Cities from Roanoke to Norfolk, that it was not appropriate to eliminate groups in Southern destination territory and make the rates apply to specific points. Considering the burden imposed by the rate upon the respective territories served, the broader base upon which the rate rests the less onerous the burden, which is to say that the rate is less productive because the amount of service rendered to earn it is greater. In this case we are vitally concerned with the question of the territorial distribution of revenue to the State of North Carolina, which is a problem closely akin to the one which the Commission had before it. The Durham branch mileage in North Carolina is limited to 42 miles in total, and in the case of the Durham-Woodsdale group base for the rates in question, to a total spread of 38 miles, the average of which is 19 miles. For the haul through this 19-mile average distance plus six miles between the groups to the next town of Denniston, Virginia, the rate is 12½. After reaching Station Group K, at Gladys, Virginia, with an average haul of 62 miles for 16c, the shipment is transported 221 miles farther to Norfolk for an additional 2 cents; to Hagerstown, Mary-

land, 334 miles farther for an additional 8 cents; and to Buffalo Creek, West Virginia, 374 miles farther over the severe grades of the Appalachian Range for an additional 11½ cents. Similar differences apply southbound.

It seems to me to be plainly evident that so far at least as this particular set of rates is concerned the charges assessed for transportation over the Durham branch are on a materially higher level than for the hauls on other parts of the system. The greater cost of providing service on the Durham branch justifies a relatively higher level of charges on the branch lines than elsewhere where operating costs are lighter. It stands to reason, therefore, that consideration of actual operating expenses bespeaks the consideration in connection therewith of the actual (76) gross revenues derived therefrom, rather than a ratable share of revenue based upon the miles of haul in complete disregard of the cost of the haulage.

Rate Table No. 24 covers a total of 20 groups of commodities. The rates applicable to different groups may and do vary, but the rates are based on the groups illustrated on this chart. The same station groups are also used for basing the rates on the same commodities from Winston-Salem and stations on that branch in North Carolina.

There are other commodity rates which were in effect during the period involved in this case which were also made on a group to group basis but rest upon a different system of station grouping. Generally speaking, the groups on the main line section of the system are broader than those here illustrated. The groups on the branches in North Carolina are not nearly so long. The North Carolina mileage of the Durham Branch is 42 miles, and the Winston-Salem Branch 47 miles.

(77) Specific Commodity Rates

In addition to commodity rates which are made on the station group basis, and which cover groups of commodities, or perchance single commodities, there are other commodity rates which cover the movement of a specific commodity between specified points for a stated rate. The Railway publishes many of these rates, some of which have application to interstate business which may touch North Carolina in its movement but most of which relate to traffic taking other routes. I have tested out some of these interstate rates published in Tariff GF 2-A I. C. C. No. 8056 which cover the territory served by the Railway's line in West Virginia, Virginia, Kentucky, Maryland and North Carolina. In some cases I found that the rate between Winston-Salem, for instance, and a point on the main line is higher than the rate covering the same commodity moving a comparable distance wholly on the main line, the movements being interstate in both instances. In other cases the main line rate is higher. For instance, the rate on sulphuric acid in tank cars, carload, from Pulaski, Virginia, to Hagerstown, Maryland, 320c per 2,000 lbs., is for the 297 miles of haul the equivalent of 1.0774c per net ton-mile; and a companion rate of 320c toWinston-Salem, 229 miles distant, is the equivalent of 1.4192c per net ton-mile, or 132% of the ton-mile yield of the Hagerstown rate. On the other hand, on Cast Iron Pipe in carloads from East Radford, Virginia, to Winston-Salem, 164 miles, the rate is 360c per net ton, or 2.1951c per net ton-mile. This involves a branch line haul. From Lynchburg, Virginia, to Malcolm, Virginia, 151 miles, the rate is 350c per net ton, or 2.3179c per net ton-mile, or 105.60% of the Winston-Salem rate. Malcolm is on the main line just east of Bluefield, West Virginia.

(78) In contrast with the cases cited, the rate on pig iron, carloads, from Pulaski, Virginia, to Durham, North Carolina, 229 miles, is 259c per gross ton, or 1.0087c per net ton-mile; and to Petersburg, Virginia, a main line point 1 mile farther from Pulaski, the rate is 200c, or 0.7783c per net ton-mile. The latter movement, however, is intrastate. On petroleum and petroleum products rated fifth class in Southern territory, the rate for interstate movements Norfolk to Williamson, W. Va., 453 miles of main line haul, is 36½c per cwt., or 1.6115c per net ton-mile, and to Buffalo Creek, W .Va., 532 miles distant, the rate is the same but the yield is 1.3722c per net ton-mile, while the rate Norfolk to Winston-Salem, only 374 miles, is but one-half cent less, or 36c, the yield being 1.9251c per net ton-mile. In contrast the rate from Lynchburg to Durham produces 4.9573c and Roanoke to Winston-Salem 4.7934c for hauls of only 117 and 121 miles, respectively. These branch line rates protect the higher branch line costs which earn them.

My examination of the relationship of rates of this character leaves me of the opinion that their levels are dictated by the circumstances of the particular cases, and that they afford no indication of the general relationship between interstate rate levels obtaining on the main and branch lines. During the month of October, 1929, the average haul of all traffic touching North Carolina was 294.59 miles. That includes coal, the average haul of which is 300.08 miles. The average haul of all system traffic in 1929 was 280.18 miles. The average distance from Winston-Salem and Durham to the principal termini of the system (that is, Cincinnati, Columbus, Hagerstown and Norfolk) is 488 miles. The October, 1929, average haul on North Carolina merchandise traffic was 290.70 miles, or 60% of the 488 mile average haul to the principal system termini, and 115% of the 1929 sys-

tem average haul of 254 miles on all merchandise traffic. (79) These circumstances suggest that no great proportion of North Carolina traffic moves under commodity rates which apply to local movements on the Railway's system. It seems probable, on the other hand, that the bulk of merchandise traffic touching North Carolina probably moves as inter-line business. For that reason it will be of interest to examine into the relationship of through commodity rates, and how they compare with through class rates, because unquestionably such rates combine to produce the preponderance of gross revenue from merchandise traffic which moves to, from, and within the State of North Carolina in interstate movements.

(80) Through Class and Commodity Rates

The reasons of time, expense, and deficiency of records render it practically impossible for any one, unless it be the Railway itself, to examine the many thousands of rates and ratings which, during the three years involved in this case, applied to the hundreds of thousands of consignments which moved through the various gateways and junctions of the Railway's lines and contributed to its gross earnings in North Carolina. I have not been able to conduct my study of the subject along such ample lines. On the oher hand, it would be feasible to select a great number of movements of different kinds of traffic, compare the rates which apply thereto, and present such sample cases as being typical of the general situation. But the fact is that there is no possible way by which it may be known whether such cases as might be presented are typical or not. It has therefore seemed futile, in my judgment, to include in this record voluminous exhibits setting forth many thousands, perhaps, of individual illustrations of this or that situation, because, whatever the

quantity of evidence which might be produced, providing it fell short of a thorough and complete exhibition of every single detail it would still possess shortcomings affecting its conclusiveness. For these reasons the exhibit which I shall next refer to is brief, although it might have been made voluminous without materially changing, one way or the other, the purport of what it shows.

(81) My next exhibit consists of a single sheet which is identified as follows:

(MAKER'S EXHIBIT No. R-12)

Relative Level of Rates on the N. & W. Branch Lines Serving North Carolina Versus Remainder of System

Comparing Branch Lines' Proportions of Commodity and Class Rates to North Carolina Destinations on Typical Carload Traffic With Branch Lines' Mileage Prorate of the Same Rates

Exhibit No.----------
Witness: Roberts, J. W.
(Maker's Exhibit No. R-12)

Before the
HONORABLE SUPERIOR COURT OF WAKE COUNTY, NORTH CAROLINA
Concerning the
RELATIVE LEVELS OF RATES ON THE N. & W. BRANCH LINES SERVING NORTH CAROLINA VERSUS REMAINDER OF SYSTEM
COMPARING BRANCH LINES' PROPORTIONS OF COMMODITY AND CLASS RATES TO NORTH CAROLINA DESTINATIONS ON TYPICAL CARLOAD TRAFFIC, WITH BRANCH LINES' MILEAGE PRORATE OF THE SAME RATES

COMMODITY RATES

Commodity and Tariff Authority	From	Route	Winston-Salem and Durham		Roanoke and Lynchburg	
			Rate	Average Miles	Rate	Average Miles
a	b	c	d	e	f	g
AGRICULTURAL IMPLEMENTS,	Chicago, Ill.----	A	64 c	848.5	53½c	729.5
OTHER THAN HAND:	Burlington, Iowa--	B	79	977.8	63	858.8
Carlot mini'm, 24,000 lbs.	Peoria, Ill.-------	C	64	885.3	59½	766.3

Tariff, S48, Delaney's I. C. C. No. 23.	Indianapolis, Ind..	D	60½	673.8	49½	554.8
	Detroit, Mich.....	E	65	734.9	41	615.9
	Cleveland, Ohio...	F	63	692.3	40½	573.3
TOTALS			395½c		307 c	
CANNED GOODS:	Chicago, Ill.....	A	73 c	848.5	53½c	729.5
Carlot mini'm, 36,000 lbs.	Burlington, Iowa..	B	80	977.8	63	858.5
Tariff, Jones' I. C. C.	Peoria, Ill.....	C	77	885.3	59½	766.3
No. 2131 to N. C.	Indianapolis, Ind..	D	70	673.8	49½	554.8
Tariff, Jones' I. C. C.	Detroit, Mich.....	E	66	734.9	41	615.9
No. 2123 to Va.	Cleveland, Ohio...	F	64	692.3	40½	573.3
TOTALS			430 c		307 c	
SALT, in pkgs., bxs. or bbls.	Detroit, Mich.	E	39 c	734.9	24 c	615.9
Carlot mini'm, 45,000 lbs.	Cleveland, Ohio...	F	38	692.3	23	573.3
Tariff, Jones' I. C. C. No. 2410 to N. C. Tariff, Jones' I. C. C. No. 2123 to Va.						
TOTALS			77 c		47 c	
TOTAL—COMMODITY RATES			902½c		661 c	

Exhibit No._____
Witness: Roberts, J. W.
(Maker's Exhibit No. R-12)

CLASS RATES

CANDY, or Confectionery, NOIBN, including Milk Chocolate Candy or Confectionery, CL in pkgs. named. Carlot min., 36,000 lbs Tariffs, see note.	Chicago, Ill.	A	90 c	848.5	63 c	729.5
	Burlington, Iowa	B	95½	977.8	74	858.5
	Peoria, Ill.	C	92	885.3	69½	766.3
	Indianapolis, Ind.	D	78	673.8	58½	554.8
	Detroit, Mich.	E	78	734.9	48½	615.9
	Cleveland, Ohio	F	77½	692.3	48	573.3
TOTALS			511 c		361½c	
MACHINERY, AND MACHINES, NOIBN, set up or KD, loose, or on skids, CL. Carlot min., 24,000 lbs. Tariffs, see note.	Chicago, Ill.	A	75½c	848.5	53½c	729.5
	Burlington, Iowa	B	79½	977.5	63	858.5
	Peoria, Ill.	C	77½	885.3	59	766.3
	Indianapolis, Ind.	D	74	673.8	49½	554.8
	Detroit, Mich.	E	65½	734.9	41	615.9
	Cleveland, Ohio	F	65½	692.3	40½	573.3
TOTALS			437½c		306½c	

FRESH MEATS, NOIBN, in carcasses or part carcasses, loose or in pkgs, CL. Carlot min., 21,000 lbs. Tariffs, see note.	Chicago, Ill.	A	92½c	848.5	76 c	729.5
	Burlington, Iowa	B	98	977.5	84	858.5
	Peoria, Ill.	C	92½	885.3	84	766.3
	Indianapolis, Ind.	D	84	673.8	70½	554.8
	Detroit, Mich.	E	94	734.9	58½	615.9
	Cleveland, Ohio	F	93½	692.3	58	573.3
TOTALS			554½c		431 c	
TOTAL—CLASS RATES			1503 c		1099 c	
COMMODITY AND CLASS RATED ITEMS COMBINED —TOTALS			2405½c		1760 c	

TARIFF AUTHORITY FOR CLASS RATES:
Jones' I. C. C. Nos. 1851, 938, 1460, 1938, 2123, 2100, and Cotterill's I. C. C. No. 731.

ROUTES:
A—From Chicago, Ill.—C&O, Cincinnati; N&W, Roanoke-Lynchburg.
B—From Burlington, Iowa—CB&Q, Monmouth; M&StL, Peoria; B4, Cincinnati; N&W Roanoke-Lynchburg.
C—From Peoria, Ill.—B4, Cincinnati; N&W, Roanoke-Lynchburg.
D—From Indianapolis, Ind.—B4, Cincinnati; N&W, Roanoke-Lynchburg.
E—From Detroit, Mich.—NYC, Toledo; HV, Columbus; N&W, Roanoke-Lynchburg.
F—From Cleveland, Ohio—B4, Columbus; N&W, Roanoke-Lynchburg.

Exhibit No.
Witness: Roberts, J. W.
(Maker's Exhibit No. R-12)

COMMODITY RATES—*Continued*

Commodity and Tariff Authority	From	Route	Branch Line Proportion of Through Rates (Col. D—F)		Branch Line Mileage Prorate of Through Rates		Ratio of Branch Line Proportion of Thru Rates To Mileage Prorate
			Rate	Average Miles	Percent	Amount	
a	b	c	h	i	j	k	l
AGRICULTURAL IMPLEMENTS, OTHER THAN HAND: Carlot mini'm, 24,000 lbs. Tariff, S48, Delaney's I. C. C. No. 23.	Chicago, Ill.	A	10½c	119	14.02%	8.97c	
	Burlington, Iowa	B	16	119	12.17%	9.61	
	Peoria, Ill.	C	4½	119	13.44%	8.60	
	Indianapolis, Ind.	D	11	119	17.66%	10.68	
	Detroit, Mich.	E	24	119	16.19%	10.52	
	Cleveland, Ohio	F	22½	119	17.19%	10.83	
TOTALS			88½c			59.21c	149.47%

CANNED GOODS:	Chicago, Ill.	A	19½c	119	14.02%	10.23c	
Carlot mini'm, 36,000 lbs.	Burlington, Iowa	B	17	119	12.17%	9.74	
Tariff, Jones' I. C. C.	Peoria, Ill.	C	17½	119	13.44%	10.35	
No. 2131 to N. C.	Indianapolis, Ind.	D	20½	119	17.66%	12.36	
Tariff, Jones' I. C. C.	Detroit, Mich.	E	25	119	16.19%	10.69	
No. 2123 to Va.	Cleveland, Ohio	F	23½	119	17.19%	11.00	
TOTALS			123 c			64.37c	191.08%
SALT, in pkgs., bxs. or bbls.	Detroit, Mich.	E	15 c	119	16.19%	6.31c	
Carlot mini'm, 45,000 lbs.	Cleveland, Ohio	F	15	119	17.19%	6.53	
Tariff, Jones' I. C. C. No. 2410 to N. C. Tariff, Jones' I. C. C. No. 2123 to Va.							
TOTALS			30 c			12.84c	116.82%
TOTAL—COMMODITY RATES			241½c			136.42c	177.03%

CLASS RATES

CANDY, or Confectionery,	Chicago, Ill.	V	27 c	119	14.02%	12.62c	
NOIBN, including Milk	Burlington, Iowa	B	21½	119	12.17%	11.62	

Exhibit No._____
Witness: Roberts, J. W.
(Maker's Exhibit No. R-12)

CLASS RATES—*Continued*

Chocolate Candy or Confectionery, CL in pkgs. named.	Peoria, Ill.	C	22½	119	13.44%	12.36	
	Indianapolis, Ind.	D	19½	119	17.66%	13.77	
	Detroit, Mich.	E	29½	119	16.19%	12.63	
Carlot min., 36,000 lbs Tariffs, see note.	Cleveland, Ohio	F	29½	119	17.19%	13.32	
TOTALS			149½c			76.32c	195.89%
MACHINERY, AND MACHINES, NOIBN, set up or KD, loose, or on skids, CL. Carlot min., 24,000 lbs. Tariffs, see note.	Chicago, Ill.	A	22 c	119	14.02%	10.59c	
	Burlington, Iowa	B	16½	119	12.17%	9.68	
	Peoria, Ill.	C	18½	119	13.44%	10.42	
	Indianapolis, Ind.	D	24½	119	17.66%	13.07	
	Detroit, Mich.	E	24½	119	16.19%	10.60	
	Cleveland, Ohio	F	25	119	17.19%	11.26	
TOTALS			131 c			65.62c	199.63%
FRESH MEATS, NOIBN, in carcasses or part carcasses, loose or in pkgs, CL.	Chicago, Ill.	A	16½c	119	14.02%	12.97c	
	Burlington, Iowa	B	14	119	12.17%	11.93	
	Peoria, Ill.	C	8½	119	13.44%	12.43	

Carlot min., 21,000 lbs. Tariffs, see note.	Indianapolis, Ind.	D	13½	119	17.66%	14.83	
	Detroit, Mich.	E	35½	119	16.19%	15.22	
	Cleveland, Ohio	F	35½	119	17.19%	16.07	
TOTALS			123½c			83.45c	147.99%
TOTAL—CLASS RATES			404 c			225.39c	179.24%
COMMODITY AND CLASS RATED ITEMS COMBINED —TOTALS			645½c			361.81c	178.41%

DISTANCE—MILES:

From	To Roanoke	To Lynchburg	Average	To Winston-Salem	To Durham	Average
Chicago, Ill.	703.2	755.8	729.5	824.2	872.8	848.5
Burlington, Iowa	832.5	885.1	858.8	953.5	1002.1	977.8
Peoria, Ill.	740.0	792.6	766.3	861.0	909.6	885.3
Indianapolis, Ind.	528.5	581.1	554.8	649.5	698.1	673.8
Detroit, Mich.	589.6	642.2	615.9	710.6	759.2	734.9
Cleveland, Ohio	547.0	599.6	573.3	668.0	716.6	692.3

At the outset of the discussion of this exhibit I ought to say that it has been impossible to ascertain the kinds of traffic which move under different kinds of rates via the branches. I have been desirous of comparing the rates which actually produce the gross revenues which are apportionable to the State. I have been informed by the representatives of shippers that under the rates, between the points, and over the routes shown on this exhibit there was an actual movement of traffic in substantial quantities during the years 1927-8 and 9. At the outset I selected the six groups of commodities mentioned on this exhibit as being staple articles of commerce between the central and southern territories which qualify as necessaries, and with the thought, that because of that qualification, and because they are not the products of a single region and therefore susceptible to special rates and ratings, that they might be representative, in so far as they went. I have the assurance of practical traffic men whom I have consulted that in their opinion the rates on these commodities ought to give a fair conception of the average relationship of merchandise rates in general for traffic of average quality.

On this exhibit I have shown three groups of commodities which move from points in official territory via the Railway's line to Winston-Salem and Durham, and to Roanoke and Lynchburg, under Commodity Rates, and three other groups of commodities which make the same movements under class rates. The class rates shown are those which were effective from and after January 15, 1928, so far as Winston-Salem and Durham are con-
(82) cerned. The rates to the Virginia Cities were effective throughout the three-year period 1927 to 1929. The three commodity rated items appear in the upper sec-

tion of the exhibit, and the three class rated items in the lower section thereof.

The exhibit shows the movement of these six groups of commodities from six principal producing points, four of which use the Cincinnati gateway and two of which reach the Railway's line at Columbus. Therefore, whatever disadvantage branch line proportions may have under rates based on Cincinnati rather than the Virginia Cities, that disadvantage is manifested in the results of this exhibit in the ratio of 2 to 1. The six originating points from which the rates are shown are Chicago, Ill.; Burlington, Ia.; Peoria, Ill.; Indianapolis, Ind.; Detroit, Mich.; and Cleveland, Ohio. The density of traffic over the Railway's line from Hagerstown, Md., is relatively light. The through rates over that route are made on the Virginia Cities basis, which is unusually favorable as regards the branch lines' proportions of through rates. In this exhibit that route is not used for the reason that I could not be certain about the kind and origins of traffic using that route. Omitting it from this picture does not, I think, operate to overstate the showing made on the exhibit.

In Column A of this Exhibit R-12 is shown the description of the commodity group, the carlot minima, and reference to the tariffs covering the rates used. In Column B is shown the point of origin, and in Column C the reference to the route of movement, which is detailed in a footnote. In Column D is shown the common rate to Winston-Salem and Durham. In Column E is shown the average route mileage traversed. The development of the average is shown in a footnote in the lower right-hand corner of the exhibit. In Column F is shown the common rate to both Roanoke and Lynchburg, the branch

lines junction points. In Column G is the averaged route mileage, which is also developed in the footnote. In (83) Column H is shown the branch line proportion of the through rate, which as here regarded is the difference between the rate to the main line junctions with the branches and the through rate to the North Carolina cities at the southern end of the branches. In other words, Column H is Column D less Column F. In Column I is the average branch line mileage, which is 119 miles. This is one-half of the sum of 121 miles for the Winston-Salem Branch and 117 miles for the Durham Branch. In the double column JK is shown the branch line proportion of the through rate on a mileage prorate basis, the percent which the average branch mileage is of the total route mileage being shown in Column J, and the fractional rate in cents per hundredweight in Column K. The figure in Column K is the product of Column J times Column D.

The sum of the respective rates appear on the lines marked "totals." Looking at the first total line, for example, it will be noted that the total of the six through rates to the Carolina cities is 395½c per Column D. The total of the six rates to the Virginia Cities is 307c per Column F. The difference between them, or the excess over the junction point rates for the branch haul, is 88½c per Column H. The aggregate of the mileage prorate of each rate, which is 59.21c, is in Column K. In Column L, on the same line, is the ratio per cent of the Branch Line Proportion of the Through Rate to the Mileage Prorate of the Through Rates. In this case it is 149.47%. This is the quotient of Column H divided by Column K.

The same procedure obtains with respect to each of the six sub-sections of the exhibit.

The average of the three commodity rated items, shown on the line "Total-Commodity Rates," shows that the excess proportion of the through rates for the branch line haul is 177.03% of the mileage prorate. For the Class-rated items the comparable ratio is 179.24%. For both the commodity-rated and class-rated items, the ratio is 178.41%.

It is to be borne in mind that the ratios shown in Column L understate in substantial degree the actual dis-
(84) crepancy between a mileage prorate of the through rate, and the branch lines' proper proportion thereof, because on this exhibit the mileage prorate is compared with the difference between the through rates to the main line junction points, and to the southern termini of the branches, respectively. This is the difference in rates, for example, for hauling a shipment to Roanoke, Va., and delivering it there, and hauling the same shipment to Winston-Salem and terminating it there. To get at the proper proportion of the through rate assignable to the branch, from the Roanoke rate should be eliminated the compensation it provides for one terminal handling. The residue, when subtracted from the through rate to Winton-Salem, would then indicate correctly the additional charge assessed for the branch line haul. In the case of these particular rates it is not feasible to make such an adjustment in order to find out what the true ratio of difference is, but we may be sure it is materially greater than the ratios shown in Column L of this exhibit.

(85) N. & W.'s Reported Gross Revenue Earnings in North Carolina Compared With Reported Earnings of Other Roads Serving the State

It is of interest to compare the ton-mile average of the gross freight revenues reported to North Carolina by the Railway with those of other roads which serve the State.

I have set up a table comparing the gross revenues reported to the State by four large Class I steam roads, and by four small Class II steam roads, for the years 1927, 1928 and 1929, and the average for the three years, with the gross revenues reported by the Railway. For comparative purposes the gross revenues are reduced to a net ton-mile basis.

This statement consists of a single sheet and is inscribed as follows:

(MAKER'S EXHIBIT No. R-13)

Relative Levels of Rates on the N. & W. Branches Serving North Carolina and Remainder of System Relation of North Carolina Earnings of Gross Freight Revenues Per Net Ton-Mile of Four Class I Trunk Lines and Four Class II North Carolina Roads and N. & W. Railway Company's Freight Revenues Reported, Years 1927-8-9.

Exhibit No._____
Witness: Roberts, J. W.
(Maker's Exhibit No. R-13)

Before the
Honorable Superior Court of Wake County,
North Carolina
Concerning the
Relative Level of Rates on the N&W Branches Serving North Carolina vs. Remainder of System.
Relation of North Carolina Earnings of Gross Freight Revenue Per Net Ton Mile of 4 Class I Trunk Lines and 4 Class II North Carolina Roads, and N&W Railway Company's Gross Freight Revenue Reported Years 1927-1928-1929
(Includes gross revenues derived from both intrastate and interstate traffic)

Line No.	Item	4 Large Class I	
		Norfolk* Southern	Atlantic Coast Line
	a	b	c
	North Carolina Net Ton Miles Revenue Freight (In thousands):		
1	1927	435,663	806,831
2	1928	442,750	768,993
3	1929	391,471	775,018
4	Total 3 Years	1,269,884	2,350,842
	North Carolina Freight Revenue (Account 101):		
5	1927	$ 7,434,276	$14,163,039
6	1928	7,145,260	13,273,513
7	1929	6,293,492	13,184,958
8	Total 3 Years	$20,873,028	$40,621,510

Roads Serving North Carolina			Norfolk & Western (in N. C.)
Seaboard* Air Line	Southern*	Together	
d	e	f	g
903,697	1,800,535	3,946,726	122,149
711,593	1,726,582	3,649,918	114,548
698,517	1,716,770	3,581,776	114,912
2,313,807	5,243,887	11,178,420	351,609
$ 11,856,539	$ 23,140,214	$ 56,594,068	$ 1,158,437
11,659,071	22,216,908	54,294,752	1,109,495
11,566,341	22,217,102	53,261,893	1,106,387
$ 35,081,951	$ 67,574,224	$164,150,713	$ 3,374,319

Line No.	Item	4 Large Class I Norfolk* Southern	Atlantic Coast Line
	a	b	c
	Average Revenue Per Net Ton Mile:		
9	1927	c 1.7064	c 1.7554
10	1928	1.6138	1.7261
11	1929	1.6077	1.7012
12	Average For 3 Year Period	c 1.6438	c 1.7280

Gross Freight Revenue Earned Per Net Ton Mile in North Carolina and Relation to N&W Gross Revenue As Reported.

13	Year 1927	c 1.7064	c 1.7554
14	Percent of N. & W.	179.92%	185.09%
15	Year 1928	c 1.6138	c 1.7261
16	Percent of N. & W.	166.61%	178.21%
17	Year 1929	c 1.6077	c 1.7012
18	Percent of N. & W.	166.98%	176.69%
19	3 Year Average	c 1.6438	c 1.7280
20	Percent of N. & W.	171.13%	180.08%

Roads Serving North Carolina			Norfolk & Western (in N. C.)
Seaboard* Air Line	Southern*	Together	
d	e	f	g
c 1.3120	c 1.2852	c 1.4340	c 0.9484
1.6384	1.2868	1.4876	0.9686
1.6558	1.2941	1.4870	0.9628
c 1.5162	c 1.2886	c 1.4685	c 0.9597

Gross Freight Revenue Earned Per Net Ton Mile in North Carolina and Relation to N&W Gross Revenue As Reported.

c 1.3120	c 1.2852	c 1.4340	c 0.9484
138.34%	135.51%	151.20%	100%
c 1.6384	c 1.2868	c 1.4876	c 0.9686
169.15%	132.85%	153.58%	100%
c 1.6558	c 1.2941	c 1.4870	c 0.9628
171.20%	134.41%	154.45%	100%
c 1.5162	c 1.2886	c 1.4685	c 0.9597
157.99%	134.27%	153.02%	100%

4 SMALL CLASS II

Line No.	Item	Together	Winston-Salem* Southbound
	a	h	i
	NORTH CAROLINA NET TON MILES REVENUE FREIGHT (IN THOUSANDS):		
1	1927	176,656	98,937
2	1928	172,363	93,757
3	1929	165,697	91,455
4	TOTAL 3 YEARS	514,716	284,149
	NORTH CAROLINA FREIGHT REVENUE (ACCOUNT 101):		
5	1927	$ 3,801,014	$ 1,455,171
6	1928	3,707,103	1,387,735
7	1929	3,668,992	1,423,574
8	TOTAL 3 YEARS	$11,177,109	$ 4,266,480
	AVERAGE REVENUE PER NET TON MILE:		
9	1927	c 2.1516	c 1.4708
10	1928	2.1508	1.4801
11	1929	2.2143	1.5566
12	AVERAGE FOR 3 YEAR PERIOD	c 2.1715	c 1.5015

Roads Situate Wholly In North Carolina			Norfolk & Western (in N. C.)
Atlantic* & Yadkin	High Point Thomasville and Denton	Durham* & Southern	
j	k	l	g
49,099	8,715	19,905	122,149
47,578	10,702	20,326	114,548
41,736	12,661	19,845	114,912
138,413	32,078	60,076	351,609
$ 1,195,538	$ 404,290	$ 746,015	$ 1,158,437
1,202,912	432,367	684,089	1,109,495
1,141,585	423,041	680,792	1,106,387
$ 3,540,035	$ 1,259,698	$ 2,110,896	$ 3,374,319
c 2.4350	c 4.6390	c 3.7479	c 0.9484
2.5283	4.0401	3.3494	0.9686
2.7353	3.3413	3.4306	0.9628
c 2.5576	c 3.9270	c 3.5137	c 0.9579

Gross Freight Revenue Earned Per Net Ton Mile in North Carolina and Relation to N&W Gross Revenue As Reported.

Line No.	Item	4 Small Class II	
		Together	Winston-Salem* Southbound
	a	h	i
13	Year 1927	c 2.1516	c 1.4708
14	Percent of N. & W.	226.87%	155.08%
15	Year 1928	c 2.1508	c 1.4801
16	Percent of N. & W.	222.05%	152.81%
17	Year 1929	c 2.2143	c 1.5566
18	Percent of N. & W.	229.99%	161.67%
19	3 Year Average	c 2.1715	c 1.5015
20	Percent of N. & W.	226.27%	156.46%

Gross Freight Revenue Earned Per Net Ton Mile in North Carolina and Relation to N&W Gross Revenue As Reported.

Roads Situate Wholly In North Carolina			Norfolk & Western (in N. C.)
Atlantic* & Yadkin	High Point Thomasville and Denton	Durham* & Southern	
j	k	l	g
c 2.4350 256.75%	c 4.6390 489.14%	c 3.7479 395.18%	c 0.9484 100%
c 2.5283 261.03%	c 4.0401 417.11%	c 3.3494 345.80%	c 0.9686 100%
c 2.7353 284.10%	c 3.3413 347.04%	c 3.4306 356.31%	c 0.9628 100%
c 2.5576 266.50%	c 3.9270 409.19%	c 3.5137 366.12%	c 0.9597 100%

Source of Information: Individual carriers' reports to North Carolina Corporation Commission, and I. C. C. "Statistics of Railways in the United States" 1927-8-9.

*Connects with N. & W. in North Carolina.

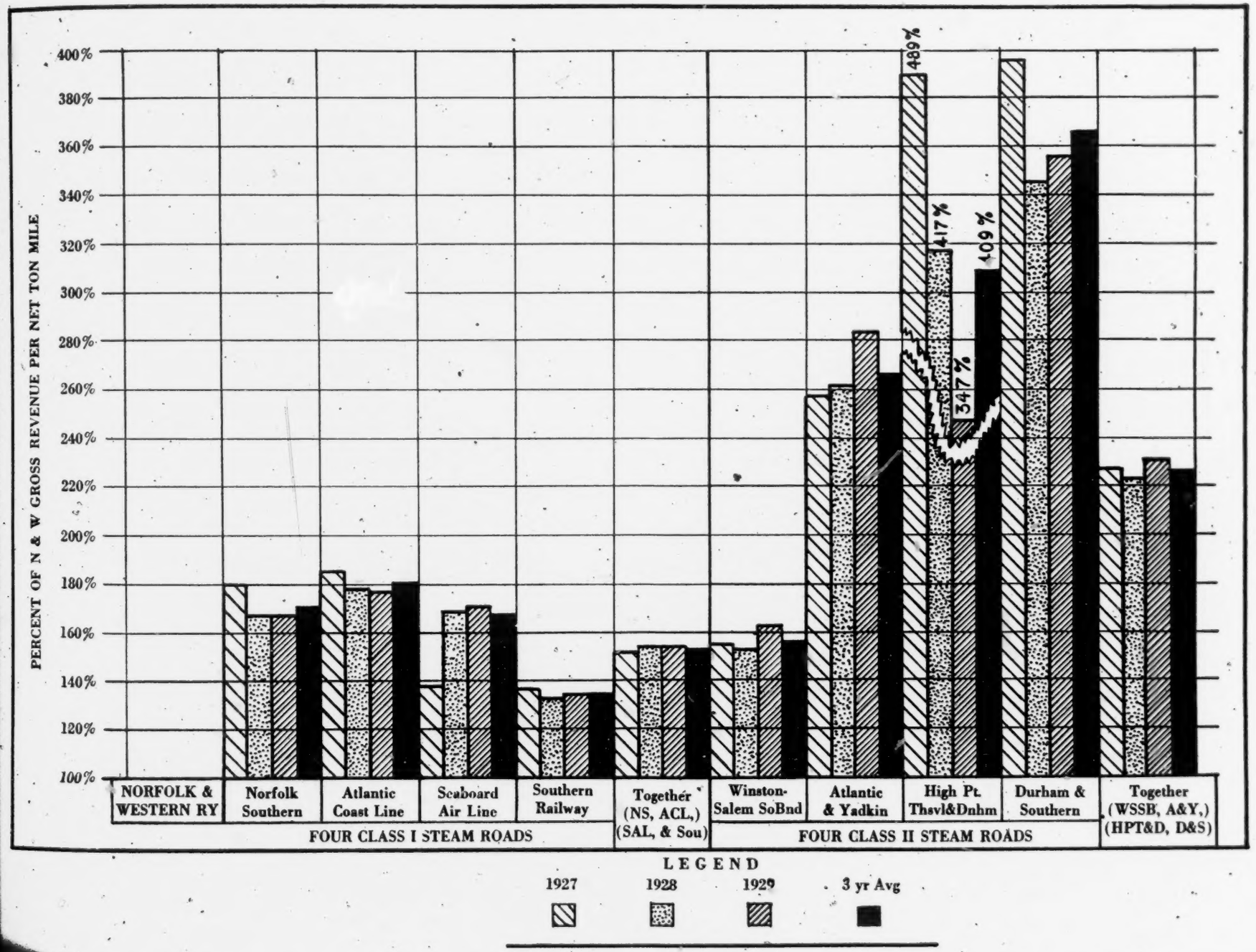
The information respecting the four Class I roads was taken from their annual reports to the North Carolina Corporation Commission. The Class II roads operate wholly within the State of North Carolina which permits their system figures to be used. They were taken from the Interstate Commerce Commission's Statistics of Railways in the United States, for the respective years.

On this exhibit the revenue net ton-miles of each road for each of the three years, and the total therefor, are shown on lines 1 to 4. On lines 5 to 8 are shown the gross freight revenue per net ton-mile, which results from dividing the gross revenue by the number of net ton-miles. On Lines 13, 15, 17, and 19, the ton-mile earnings are repeated, and on Lines 14, 16, 18, and 20, in red figures are shown the ratios of each road's gross revenue per net ton-mile to that reported by the Norfolk & Western Railway. (86) It is to be noted that in every instance the gross revenue per ton-mile reported by these other eight roads is materially in excess of that reported by the Railway. Taking the average for the four large roads for the three years, the gross revenue per ton-mile reported by them is 153.02%, and for the four small roads it is 366.12%, of the Railway's reported earnings.

In order to make these differences a little easier to perceive, I have prepared a graph of the ton-mile earnings ratios, using the Railway's figures as 100% or the base line. This graph is on another sheet which is designated:

CHART SHOWING THE RELATION OF
NORTH CAROLINA GROSS FREIGHT REVENUE REPORTED BY FOUR CLASS I, AND FOUR CLASS II STEAM ROADS
TO
GROSS FREIGHT REVENUE REPORTED BY NORFOLK & WESTERN RY CO.
1927, 1928, 1929 AND 3-YEAR AVERAGE
(Based on Maker's Exhibit No. R-15)

EXHIBIT NO. _____
WITNESS, Roberts, J. W.
(Maker's Exhibit No. R-14)



(MAKER'S EXHIBIT No. R-14)

Chart Showing the Relation of
North Carolina Gross Revenues Reported by Four Class I and Four Class II Steam Roads
To
Gross Revenue Reported by the Norfolk & Western Railway Co.
Years 1927-8-9 and 3-Year Average

It is to be understood that the discrepancies between the Railway's gross freight earnings and those of the other roads here shown do not necessarily, or even probably, reflect the degree of error in the Railway's apportionment of gross revenue to North Carolina: The figures are not submitted for that purpose. Differences in the character of the traffic handled, the kind of freight transported, average lengths of haul, and whether local or through business, affect the ton-mile yield of gross revenue. The extent to which these characteristics may contribute to the variation in ton-mile proceeds cannot be traced because of the inadequacy of statistical data available. The comparisons are submitted to show that the Railway's ton-mile earnings reported to the State are inordinately low as compared with the reported earnings of other railroads serving the State, and that this circumstance tends to confirm, and not to deny, the situation previously discussed in connection with the Railway's apportionment method and the insufficiency of gross revenue assigned by it to the State. It is altogether probable that the Railway's North Carolina tonnage consists somewhat more largely of coal than that of the other roads (87) shown on this exhibit. If coal revenues were properly apportioned to the State for the purpose of comparing actual expenses and actual revenues, it might be that the net earnings on coal would be relatively some-

what less than the earnings on other higher grade traffic, but even so, it does not seem to me that the Railway's lower ton-mile earnings, as shown on this exhibit, can be accounted for in that way. It is to be borne in mind that coal constitutes a substantial portion of the traffic of very railroad in this territory, and that discrepancies in the ton-mile earnings shown would be affected only to the extent of the differences in the percentage of coal to all other traffic, coupled with the difference between the ton-mile revenue of coal and other traffic.

My study of the matter leads me to the belief that some part of the difference in the relative ton-mile earnings of the Railway and the other roads is due to disparity in the quality of traffic handled, but that the remainder, which is perhaps the major part of the difference, is due to variation in the Railway's method of apportioning interstate revenue to North Carolina. In the case of the four large roads, a greater proportion of their system mileage is situate in the State, and a greater proportion of their system revenue is earned in the State than in the case of the Railway. The greater mileage operated in North Carolina produces a greater amount of intrastate revenue which is assignable without apportionment. The greater the proportion of all interstate revenue which touches the State, the less weighty, perhaps, would be errors resulting from faults contained in the method used to apportion it.

Class II railroads are excused from compiling certain data respecting traffic handled which Class I roads must supply the Interstate Commerce Commission. If we had an analysis of the traffic and revenue earnings of the Winston-Salem South Bound Railroad, shown in Column I on this exhibit, it might throw some light on what would be a reasonable expectation of the Railway's North Carolina ton-mile revenue. The Winston-Salem South

(88) Bound is the principal outlet for the Railway's southbound volume, and the principal feeder for its oncoming northbound business which does not originate on its own rails in North Carolina. Presumably the consist of the bulk of traffic would be comparable, in which event the fact that the Winston-Salem South Bound's gross revenue is 156.46% of the Railway's reported earnings would have pointed significance.

The Durham & Southern road connects with the Railway's Durham branch at Durham and continues its route. From Column L, line 20, it may be noted that the Durham & Southern freight revenue per net ton-mile, averaged for the three years, was 366.12% of that of the Railway. The Atlantic & Yadkin shows 266.50%, and the High Point Thomasville & Denton shows 409.19% of the Railway's average for the three-year period. Considered together, the four small roads situate wholly in the State show ton-mile earnings for the three years which are 266.27% of those of the Railway. Considered together, the four large roads show an average for the three years which is 153.02% of that of the Railway. Considering the Southern Railway only, whose North Carolina traffic is in all probability of quality similar to that of the Railway, it may be noted from Column E that its three-year average is 134.27% of that of the Railway, even though the Railway's operations in the State are conducted on branch lines exclusively, while the Southern's are not.

Exhibits R-13 and R-14 are respectfully submitted to show that as compared with other railroads, both large and small, which serve the State, the Railway's gross revenues reduced to a comparable basis, are inordinately low by comparison.

(89) Relation of Branch Line Freight Rate Levels in Virginia and in North Carolina

In their consideration of the expenses incident to North Carolina operations, as set forth in their exhibits, the Railway's witnesses, Messrs. Konrad and Vaughan, have allocated expenses to the State where that was feasible in a few instances, but generally they take the expenses assigned to the branches as a whole and apportion them to the State on a mileage basis. This is also true as regards traffic volume. The statement is made that conditions generally are uniform, as respects both the Virginia and North Carolina sections of the respective branches.

Accepting this situation at its face value, it is of interest to find that for intra-branch line movements there is a higher level of freight rates assessed for movements in North Carolina than in Virginia, so that if it is true as claimed that operating conditions are uniform or substantially so, the transportation of a ton of interstate freight one mile in North Carolina produces more revenue than a similar unit of service performed on the Virginia section of the branch line.

In N. & W. freight tariff No. GF 2-A, I. C. C. 8056, in rate tables Nos. 12 and 13 are published rates which were effective from 1926 until January 15, 1928, and thereafter, the successor tariff, No. GF 2-B, published similar tables which provided the rates applicable to the interstate movement, local to the respective branch lines, on eleven groups of commodities. In Tables Nos. 10 and 11, in the same tariffs, rates were published covering the interstate movements, local to the branches, of class rated freight covered by Southern Clasification classes first to sixth and A, B, C and D. In the case of both the

commodity and class rates, separate tables are provided for movements in Virginia and in North Carolina respectively. The rates are stated on a mileage basis in all cases.

On my next exhibit I have shown the rates applicable (90) for hauls of 50 miles under Commodity Rates, and under Class Rates, in Virginia, and in North Carolina, respectively, and also the ratios of the North Carolina to the Virginia rate level for both commodity and class freight.

This exhibit may be identified from inscriptions thereon as follows:

(MAKER'S EXHIBIT No. R-15)

Relative Levels of Freight Rates on the Respective Winston-Salem and Durham Branches, as Between Virginia and North Carolina Traffic, Interstate in Character, the N. & W. Movement of Which is Confined to the Respective Branches.

Exhibit No.----------
Witness: Roberts, J. W.
(Maker's Exhibit No. R-15)

Before the

HONORABLE SUPERIOR COURT OF WAKE COUNTY, NORTH CAROLINA

RELATIVE LEVELS OF FREIGHT RATES ON THE RESPECTIVE WINSTON-SALEM AND DURHAM BRANCHES, AS BETWEEN VIRGINIA AND NORTH CAROLINA TRAFFIC, INTERSTATE IN CHARACTER, THE N. & W. MOVEMENT OF WHICH IS CONFINED TO THE RESPECTIVE BRANCHES

COMMODITY RATES—HAULS OF 50 MILES

COMMODITY-TARIFF NUMBER AND EQUIVALENT RATES PER NET TON

HAUL	59 Ice, CL,	60 Salt, CL, in bags, barrels, boxes	61 Sewer Pipe, CL	64 Building Materials, Wood, Scrap Iron, CL	65 Lime, Calcium, CL	66 Tobacco, Unmfd. Any Quantity	67 Livestock, S/D, CL (Note 2)
IN NORTH CAROLINA	169c	225c	214c	230c	192c	430c	259.90c
IN VIRGINIA	147c	169c	180c	170c	180c	400c	204.54c

Haul	Commodity-Tariff Number and Equivalent Rates Per Net Ton				Aggregate Of Rates	Ratio North Carolina to Virginia Rates
	68 Livestock, D/D, CL (Note 2)	69 Plaster, etc., CL	83 Lime, Calcium, LCL	84 Plaster, etc., LCL		
In North Carolina	322.73c	230c	288c	350c	2910.63c	119.76%
In Virginia	259.90c	180c	270c	270c	2430.44c	

Exhibit No._____

Witness: Roberts, J. W.
(Maker's Exhibit No. R-15)

CLASS RATES—HAULS OF 50 MILES

Haul	Class Rates Per Hundred Weight					
	1st	2nd	3rd	4th	5th	6th
In North Carolina	51c	39.5c	34c	28.5c	21.5c	17c
In Virginia	42.5c	34c	27c	22.5c	20c	14c

Haul	Class Rates Per Hundred Weight				Aggregate of Rates	Ratio North Carolina To Virginia Rates
	A	B	C	D		
In North Carolina	14c	17c	16c	13c	251.5c	119.76%
In Virginia	11.5c	14c	13c	11.5c	210.0c	

NOTE 1: Rates on some of the commodities are published on a hundredweight basis, others on a 2000-lb. ton basis, and Commodities Nos. 67 and 68 on a carlot basis. All rates stated here on a 2000-lb. ton basis for comparison.

NOTE 2: Livestock, 22000 lb. carload minimum used to reduce rate to net-ton basis.

Tariff Authority:

Commodity Rates shown above are from N. & W. G. F. Tariff No. 2-A, I. C. C. No. 8056, Rate Tables 12 and 13.

Class Rates shown above are from N. & W. G. F. Tariff No. 2-A, I. C. C. No. 8056, Rate Tables 10 and 11.

This tariff was issued Aug. 9, 1926, effective Sept. 20, 1926 for other than Virginia Intrastate rates, and Aug. 20, 1926 for Virginia Intrastate rates.

NOTE 3: The foregoing are all the commodities covered by the rate tables referred to.

In the upper section of this exhibit which relates to the Commodity Rates, I have converted the published rates to a 2,000-lb. unit basis. Some of them are published at so much per hundredweight, others on a net ton basis, and two of them on a carlot basis, as shown in footnote 1. The class rates are all published on a hundredweight basis, and are shown in that way.

Taking the aggregate of the rates for Virginia, and again for North Carolina, it may be noted from the last column to the right that the North Carolina Commodity Rates are 119.76% of the Virginia rates, and that the same ratio also holds in the case of the Class Rates. In order that the comparison might be exact, the rates for fifty-mile hauls were taken.

The evidence supplied by these comparisons indicates conclusively that for the same amount of service rendered the gross revenue accruing to the Railway would be practically 20% greater in North Carolina than in Virginia, although, according to the testimony of Messrs. Vaughan and Konrad, the expense entailed would be substantially the same.

The significance of this situation is, that after having made a proper apportionment of gross revenue to the branch lines out of respect to the higher levels of rates which assuredly prevail thereon, the branch lines' gross revenues should then be re-apportioned as between North Carolina and Virginia in the ratio of 119.76 to 100.00, (91) in favor of North Carolina. Thereafter the North Carolina gross revenues would be in shape to compare with actual operating expenses in North Carolina, in the process of testing the reasonableness of the use of the system operating ratio applied to a mileage prorate of gross revenue.

(92) Test of the Result of the Statutory Formula for Determining Taxable Income.

The several considerations discussed heretofore, and set forth on preceding exhibits, may now be employed to test the reasonableness of the State's statutory formula for the determination of taxable income. We may also test the reasonableness of that taxable income assessed by the State to produce the taxes which the Railway has protested.

The Railway alleges that the use of the system operating ratio by the formula in the determination of taxable income serves to seriously overstate that taxable income. In support of its contention it submits that the expenses actually incurred within the State are substantially more than the sum produced by applying the system operating ratio to the total gross revenue assigned to the State, ostensibly in the manner prescribed by the law. The premise of the Railway's position is faulty because it does not relate actual operating expenses to actual gross revenue, which would produce a true state operating ratio fairly comparable with the system operating ratio used by the formula. Instead, it relates actual operating expenses to a theoretical gross revenue—gross revenue apportioned to the State on a computed basis—thereby using two factors which are entirely unrelated, and therefore incomparable. The Railway is further at fault in that the computed gross revenue upon which it bases its criticism of the formula is not a mileage prorate of gross revenue, as it purports to be, but a sum arrived at by the Railway's own method which is illogical in its conception and erratic in its results.

We shall now, by a consideration of the whole, test the reasonableness of that part of the formula to which the Railway objects, by using harmonious data,—the actual

operating expenses (as presented by the Railway's witnesses) and the actual operating gross revenues (as nearly as I am able to approximate them).

It should be remembered in making this test, that as previously said, the formula cannot be disjointed and (93) some parts rejected and others accepted. It is fair or unfair solely according to its ultimate results. In passing on to a consideration of its ultimate results I shall consider, however, the objection raised by the Railway to the use of the system operating ratio, because in doing so it is revealed that the use of the system operating ratio is in accord with the principles which underlie the making of rates which produce actual gross revenue. I shall also consider the objection raised by the Railway concerning the proportions of equipment rental credits which the State includes as a part of the formulated taxable income.

I have prepared an exhibit on which this test is made. It consists of one sheet identified as follows:

(MAKER'S EXHIBIT No. R-16)

Test of the Reasonableness of the Statutory Formula
Comparison of the Net Taxable Income as Found
By the State With
Net Taxable Income on Approximately
A Factual Basis

Exhibit No._____
Witness: Roberts, J. W.
(Maker's Exhibit No. R-16)

Before the

HONORABLE SUPERIOR COURT OF WAKE COUNTY, NORTH CAROLINA

TEST OF THE REASONABLENESS OF THE STATUTORY FORMULA

COMPARISON OF THE NET TAXABLE INCOME AS FOUND BY THE STATE WITH NET TAXABLE INCOME ON APPROXIMATELY A FACTUAL BASIS

Using (a) Approximate actual gross freight revenue instead of a mileage prorate thereof; (b) Operating expenses, as claimed by the N. & W. Ry. Co. instead of the system operating ratio; (c) Equipment rentals on an equipment-mileage prorate basis as claimed by the N. & W. Ry. Co. instead of the proportions used by the state, and (d) All other elements on bases claimed by the N. & W. Ry. Co.

Line No.	Item	Coal Revenue	Coke Revenue
	a	b	c
	Year 1927:		
A- 1	Revenue from freight traffic touching North Carolina	$2,097,164.50	$ 849.00
2	Mileage prorate to the state—percent (1)	16.28%	14.38%

3	Gross Revenue on Statutory Basis—amount	$ 341,418.38	$ 122.09
4	Rate Equation factor (Exhibit No. R-8 and R-12)	111.19%	
5	North Carolina statutory revenue equated to branch line rate levels	$ 382,081.31	122.09
6	Virginia-North Carolina rate equation factor (Exhibit R-15)		
7	North Carolina statutory revenue equated to basis N. C. rate levels	382,081.31	122.09
8	Less: Freight overcharge claims—as computed by N. & W.		
9	North Carolina freight revenue (acct. 101)—as adjusted		
10	Passenger and other revenue as reported by N. & W.		
11	Gross Operating Revenue		
12	Railway Operating Expenses		
13	Net Revenue		
14	Uncollectible Railway Revenue (Ratable proportion of system total)		
15	Taxes paid in the state—as reported by N. & W.		
16	Operating Income less deductions		
17	Equipment rentals—credit		
18	NET TAXABLE INCOME		

Line No.	Interstate Merchandise Revenue				Intrastate Revenue	Net Taxable Income Computed On A Factual Basis	Net Taxable Income As Found By the State	
	Total	Local to N. C.		Interstate			Amount	Percent of Col. i
		Percent	Amount					
	d	e	f	g	h	i	j	k
A- 1	$6,366,277.14	0.84%	$53,476.73	$6,312,800.41	$65,391.82			
2				14.08%				
3			53,476.73	$ 888,842.30	65,391.82			
4				178.41%				
5			53,476.73	$1,585,783.55	65,391.82			
6				119.76%				
7			53,476.73	$1,899,134.38	65,391.82	$2,400,206.33		
8						17,151.17		
9						2,383,055.16	$1,158,437.77	
10						225,567.31	225,567.31	

11		$2,608,622.47	$1,384,005.08	
12		1,520,935.32	869;431.99	
13		$1,087,687.15	$ 514,573.09	
14		323:05	802.42	
15		103,171.35	103,171.35	
16		$ 984,192.75	$ 410,599.32	
17		41,523.57	161,349.50	
18		$1,025,716.32	$ 571,948.82	55.76%

Exhibit No.
Witness: Roberts, J. W.
(Maker's Exhibit No. R-16)

Line No.	Item	Coal Revenue	Coke Revenue
	a	b	c
	Year 1928:		
B- 1	Revenue from freight traffic touching North Carolina	$1,823,425.40	$ 796.02
2	Mileage prorate to the state—percent (1)	16.15%	18.52%
3	Gross Revenue on Statutory Basis—amount	$ 294,483.20	$ 147.42
4	Rate Equation factor (Exhibit No. R-8 and R-12)	111.21%	
5	North Carolina statutory revenue equated to branch line rate levels	$ 327,494.77	147.42
6	Virginia-North Carolina rate equation factor (Exhibit R-15)		
7	North Carolina statutory revenue equated to basis N. C. rate levels	327,494.77	147.42
8	Less: Freight overcharge claims—as computed by N. & W.		
9	North Carolina freight revenue (acct. 101)—as adjusted		
10	Passenger and other revenue as reported by N. & W.		

11	Gross Operating Revenue	
12	Railway Operating Expenses	
13	Net Revenue	
14	Uncollectible Railway Revenue (Ratable proportion of system total)	
15	Taxes paid in the state—as reported by N. & W.	
16	Operating Income less deductions:	
17	Equipment rentals—credit	
18	NET TAXABLE INCOME	

Line No.	Interstate Merchandise Revenue				Intrastate Revenue	Net Taxable Income Computed On A Factual Basis	Net Taxable Income As Found By the State	
	Total	Local to N. C.		Interstate				
		Percent	Amount				Amount	Percent of Col. i
	d	e	f	g	h	i	j	k
B- 1	$6,153,089.47	0.67%	$41,225.70	$6,111,863.77	$62,428.38			
2				14.23%				
3			41,225.70	$ 869,718.21	62,428.38			
4				178.41%				
5			41,225.70	$1,551,664.26	62,428.38			
6				119.76%				
7			41,225.70	$1,858,273.12	62,428.38	$2,289,569.39		
8						18,838.81		
9						2,270,730.58	$1,109,495.18	
10						196,187.90	196,187.90	
11						$2,466,918.48	$1,305,683.08	
12						1,455,623.74	812,134.88	

13		$1,011,294.74	$ 493,548.20
14		167.72	424.64
15		108,426.87	108,426.87
16		$ 902,700.15	$ 384,696.69
17		42,585.56	173,021.54
18		$ 945,285.71	$ 557,718.23 59.09%

Exhibit No.
Witness: Roberts, J. W.
(Maker's Exhibit No. R-16)

Line No.	Item	Coal Revenue	Coke Revenue
	a	b	c
	Year 1929:		
C- 1	Revenue from freight traffic touching North Carolina	$1,875,497.98	$ 841.21
2	Mileage prorate to the state—percent (1)	15.93%	15.93%
3	Gross Revenue on Statutory Basis—amount	$ 298,766.83	$ 134.00
4	Rate Equation factor (Exhibit No. R-8 and R-12)	111.25%	
5	North Carolina statutory revenue equated to branch line rate levels	$ 332,378.10	134.00
6	Virginia-North Carolina rate equation factor (Exhibit R-15)		
7	North Carolina statutory revenue equated to basis N. C. rate levels	332,378.10	134.00
8	Less: Freight overcharge claims—as computed by N. & W.		
9	North Carolina freight revenue (acct. 101)—as adjusted		
10	Passenger and other revenue as reported by N. & W.		

11	Gross Operating Revenue	
12	Railway Operating Expenses	
13	Net Revenue	
14	Uncollectible Railway Revenue (Ratable proportion of system total)	
15	Taxes paid in the state—as reported by N. & W.	
16	Operating Income less deductions	
17	Equipment rentals—credit	
18	NET TAXABLE INCOME	

Line No.	Interstate Merchandise Revenue				Intrastate Revenue	Net Taxable Income Computed On A Factual Basis	Net Taxable Income As Found By the State	
	Total	Local to N. C.		Interstate			Amount	Percent of Col. i
		Percent	Amount					
	d	e	f	g	h	i	j	k
C- 1	$6,059,702.70	0.94%	$56,961.21	$6,002,741.49	$58,437.24			
2				14.06%				
3			56,961.21	$ 843,985.45	58,437.24			
4				178.41%				
5			56,961.21	$1,505,754.44	58,437.24			
6				119.76%				
7			56,961.21	$1,803,291.52	58,437.24	$2,251,202.07		
8						15,573.40		
9						2,235,628.67	$1,106,386.57	
10						194,108.59	194,108.59	
11						$2,429,737.26	$1,300,495.16	
12						1,444,704.56	730,228.03	

13	$ 985,032.70	$ 570,267.13	
14	705.57	1,998.26	
15	111,069.97	111,069.97	
16	$ 873,257.16	$ 457,198.90	
17	38,104.42	170,028.20	
18	$ 911,361.58	$ 627,227.10	68.82%

NOTE 1: Percents are based upon the mileage prorate resulting from the study of traffic for the month of October for the respective years (See Exhibit No. R-6).

This exhibit is divided into three sections in which data for the years 1927, 1928 and 1929 are shown. The gross revenues derived from the transportation of interstate Coal, Coke, and Merchandise, and Intrastate Merchandise, are dealt with in separate columns (B to H). The taxable income, inclusive of those elements which the law specifies as constituents thereof, on what I have referred to as a factual basis, is set out in Column I, and in Column J is shown the taxable income as found by the State. Before examining the data in Columns I and J, and the relation thereof, I shall undertake to explain the general basis of this exhibit.

As I have shown on my exhibits R-1 to R-6, both inclusive, the annual gross revenues which the Railway reports as having been earned in the State, which are the same amounts set forth in Mr. Vaughan's Exhibit B, were not determined by an allocation of revenues earned within the State, and taking an "equal mileage proportion" of revenues earned partly within and partly without the State, as the law requires. They are amounts resulting from the monthly application to system gross reve-
(94) nues of a series of calculations devised by the Railway's officers which they seem to believe produces results which are the equivalent of the requirements of the statutory formula, coupled with an allocation to the State of revenues locally earned by transporting intrastate commerce only. It has been shown that this is not the case, and, moreover, that the Railway's partial allocation of revenues earned wholly within the State, and the product of its calculations purporting to prorate interstate revenues on a mileage basis, err in a degree which is unpredictable. It is not feasible, therefore, to undertake to adjust the amounts of gross revenue assigned to the State by the Railway. They must be discarded completely.

The Railway's records disclose, with a reasonably close approach to accuracy, the aggregate amount of gross freight revenue "touching" the State for each month. For the years in question here the yearly totals are shown, for the respective classes of traffic, on Lines 1 of this exhibit.

For the month of October of each year a complete analysis has been made of all gross revenues touching the State, and such revenue has been distributed to the State pursuant to the requirements of the law. Revenues earned wholly within North Carolina, on both interstate and intrastate traffic, have been assigned directly to the credit of the State, and the system revenue derived from each consignment of interstate traffic has been apportioned on a mileage prorate basis, as the law requires. The results of this redistribution of the freight revenues for the month of October of each year are set out on my Exhibit R-6. The percentages of the total revenue touching the State during these months of October which was assigned to the State pursuant to the requirements of the law are shown on Lines 2 of this exhibit. These percentages, appurtenant to each class of revenue which was not directly allocatable to the State, have been applied to the aggregate amount of such revenue which touched the State during each year to produce, as shown on Lines 3 of the exhibit, the gross revenue assignable to the State (95) on the basis prescribed by law. For the year 1927 the Railway reports $1,093,045.85 of interstate revenue to have been earned within the State. For the month of October, 1927, it was found that the Railway's apportionment of interstate revenue assigned $111,541.69 to the State, whereas the statutory basis assigned $129,-434.39, or $17,892.70 more to the State. If it could be assumed (which logically cannot be done) that the same degree of error obtained in each of the other eleven

months of 1927, the Railway's apportionment of the year's interstate revenue to the State would be increased in the ratio of $129,434.39 to $111,541.69, or 116.0413%. This would increase its annual total of $1,093,045.85 to $1,268,384.73, which is $15,474.77 less than the $1,283,859.50 derived by applying the October percentages to the yearly totals of the respective classes of apportionable revenue touching the State.

For the year 1928 application of the percentages found for the month of October of that year to the yearly totals of the respective classes of apportionable revenue assigns $1,205,574.53 thereof to the State, and this amount is $20,610.08 more than the $1,184,964.45 which results from taking 113.1699% of the Railway's apportionment of $1,047,066.80, the 113.1699% being the factor necessary to correct its October, 1928, distribution. For the year 1929 the same process has been followed, and for this year the use of October, 1929, experience to determine the amount assignable to the State out of the sum total of apportionable revenue touching it credits the State with $52,069.46 more than would result from modifying the Railway's yearly distribution according to the correcting factor found for the month of October, 1929.

The amounts of difference referred to are mentioned to satisfy curiosity, and not because they have significance. It has already been shown that the results of the Railway's method of distribution depends, not upon the amount of apportionable revenue earned partly in and partly outside of the State, and miles of haul within the State, but upon the idiosyncracies of the combinations of (96) items grouped for the purpose of distribution. These items are not confined to revenues which touched the State, but embrace every item subject to apportionment

among any of the states served by the system. No claim can be made for the exactness of a distribution of the yearly totals of apportionable revenue which utilizes the actual experience of only one month of the year, but nevertheless, all things considered, I believe that it produces a result which comes nearer the fact than those obtained by the Railway's method, which with no control over the possible degree of unwarranted variation, deals with all apportionable revenue earned by the system.

Lines 3-A, B, and C on this exhibit, show, therefore, the amounts of revenue apportionable to the State on the basis of the Statute's requirements as nearly as may be. On the following six lines these amounts of revenue are equated to the basis of the relative levels of the freight rates which produce gross revenue from the transportation of freights within the State.

On Lines 4-A, B, and C are shown the several equation factors developed on Exhibit R-8, as respects coal traffic, and on Exhibit R-12 as respects interstate merchandise traffic, to represent the levels of branch line to main line rates. On the next succeeding lines in each section the class revenues assigned to the State on the statutory basis are elevated to comport with the higher levels of branch line rates. The increase in the branch line earnings as here adjusted would of course be deductible from the revenues assigned to the main line on a mileage prorate basis.

On Lines 6-A, B, and C appear the equation factor representing the difference in the level of rates, as between Virginia and North Carolina sections of the branches, on interstate traffic, as developed on Exhibit R-15. On Lines 7-A, B, and C are shown the North Carolina revenues equated to recognize the difference in the rate levels between main and branch line, and again

to recognize the established difference in the level of rates obtaining on the branch line sections in Virginia and
(97) North Carolina respectively. Coal Revenue (Column B) is equated to respect only the difference between main and branch line rate levels. The branch line levels have not been adjusted to respect difference between Virginia and North Carolina rates applying to interstate traffic confined to the branch, because my examination of the tariffs failed to disclose that they recognized that difference in the case of coal rates. Possibly the bases of dividing interline revenue make such a distinction, but we have not had access to the division sheets of the Railway. The apportionable part of interstate Merchandise Revenue (Column G) is equated to respect differences in main and branch line rate levels, and also Virginia-North Carolina branch line rate levels applicable to intra-branch interstate traffic.

The ratio of 178.41%, taken from Exhibit R-12, is applied to interstate Merchandise revenue (spread on a straight mileage prorate) in Column G, to elevate it to the level of branch line rates. This ratio from Exhibit R-12 is used because it is believed to be a fair average for both class-rated and commodity-rated merchandise traffic. For example, Exhibits R-9 and R-10 indicate that the equation factor applicable to revenue produced by Class-rated traffic would be in the neighborhood of 250%. We cannot apply a percentage of increase to revenue derived from such traffic, however, because we do not know and cannot find out, what part of the total merchandise revenue touching North Carolina comes from that source. The relative levels of Commodity rates is dealt with on Exhibit R-11 as well as R-12, although the percentage ratio is not developed on Exhibit R-11. With respect to revenue from Commodity-rated traffic touching North Carolina the record is also silent, so that a

ratio developed for Commodity rates exclusively could not be applied for lack of a base.

On Exhibit R-12, however, both Class and Commodity rates are considered as they apply to staple items of interstate traffic and to movements thereof which may be safely considered to be conservative for the purpose for which they are used. The composite ratio of both Class (98) and Commodity rates, as it is shown on this Exhibit R-12, is therefore used for the purpose of equating gross revenues assigned to the state on a mileage prorate basis to the approximate level of the rates established for through movements over the branch lines. The equated branch line gross revenue then assumes the quality of comparability and may be considered along with the actual operating expenses which the Railway offers as being appertinent to North Carolina operations.

On Lines A-7, B-7 and C-7 the equated North Carolina gross revenue is cross-footed to a total which appears in Column I. Deducted therefrom is the amount of freight over-charge claims as computed from the Railway's records.

On Lines A-9, B-9 and C-9 appear the gross freight revenue assigned to the state. In Column I the amount is adjusted after the fashion described; in Column J the amount is the figure reported by the Railway and shown on Mr. Vaughan's Exhibit B, which was used by the state in finding the amount of tax assessed.

The passenger and other revenues, as reported by the Railway, are shown on Lines A10, B10 and C10 and the gross operating revenues appear on the next line below. In Column I they are on the equated basis; in Column J the figures are those reported by the Railway and used by the State.

On Lines A12, B12 and C12 operating expenses are shown. In Column I the amounts are those claimed by

the Railway as being approximately the actual expenses incurred in North Carolina. In Column J the amounts are those used by the state (Shown in Mr. Vaughan's Exhibit B) as the operating expense Factor, which was obtained by applying the annual system operating ratio to the amount of gross revenue reported by the Railway as assigned to the state, ostensibly in accordance with the requirements of the statutory formula.

Apropos the Railway's objection to the use of the system operating ratio in the state's formula, it is interesting to contrast the effects produced by the use of that ratio and by using actual gross revenue (as nearly as may be) and actual operating expenses (again as nearly as may be).

(99) The difference between gross operating revenue and operating expenses is called Net Revenue. On this exhibit net revenue for the respective years is shown on Lines 13.

The net revenue used by the state for the assessment of the tax appears in Column J. Actual operating expenses which logically and reasonably require the consideration therewith of the con-commitant actual gross revenue, produces the net revenue shown in Column I.

For the year 1927, the net revenue factor used by the state was $514,573.09, whereas the actual was $1,087,687.15; for 1928, the state used $493,548.20, whereas the actual was $1,011,294.74; and for 1929, the state used $570,267.13, whereas the actual was $985,032.70. For the year 1927 the state used as its net revenue factor for taxing purposes 47.3% for 1928, 48.8%, and for 1929, 57.9% of the approximate actual net revenue earned in the state.

The system operating ratio used by the formula, and the actual operating ratio in the state as disclosed by the

relationship of the gross operating revenues and operating expenses shown on this exhibit were as follows:

Year	System Opr. Ratio as used by state	State Opr. Ratio as here developed
1927	62.82%	59.30%
1928	62.20%	59.01%
1929	56.15%	59.46%

It may be noted that the state and system operating ratios do not differ greatly when the factors which they express are properly related. Overlooking the simple truth that things related must possess the quality of similarity, the Railway's view of the situation is that the revenues derived from North Carolina operations do not equal the expense of operations. The state operating ratios developed from the figures on Mr. Vaughan's Exhibit B are 109.06% for 1927, 111.48% for 1928, and 111.09% for 1929.

This brings me to the point where I may advert for a moment to a previous statement to the effect that the formula's use of the system operating ratio recognizes (100) the principles which underlie the making of rates which produce gross revenue. I have in mind particularly freight rates, which produced 84½% of the gross revenue reported by the Railway, but 91.8% of the gross revenue actually earned in the state, during the years 1927, 1928, and 1929.

The principles underlying the making of rates contemplate that the rates shall be just and reasonable; that they shall yield gross revenue sufficient to cover the cost of the service plus a fair return upon the investment in the property employed in rendering the service, with due regard to the value of the service to the user. The gross

revenue attributable to North Carolina emanated from rates lawfully assessed and therefore, presumably possessed of the qualities imparted by the principles governing their establishment. Inferentially, at least, the rates were sufficiently high to cover service costs, including costs incurred on the main line sections, as well as the branch line sections, of the routes traversed by the traffic. The revenue earned within the state necessarily entailed an operating expense, as well as other incidental costs, which were local to the state; revenues earned partly within, and partly without, the state, necessarily entailed an expense which was dispersed as to its location. All of the expenses and costs incurred, however, are "joint" expenses. That is to say they are of a comman nature. They are common in practically every particular to the earning of gross revenues some of which are local to the state, because the transportation service earning them did not extend beyond the boundaries of the state, and some of which are common to two or more states in which the service was rendered.

Now, one of the first, if indeed not the very first, consideration encountered in making just and reasonable rates is that the rate shall be high enough to cover the cost of the service which earns it. This is true whether the rates apply to transportation over main lines, or branch lines, in this state or that state. It is a fundamental proposition. The segregation and allocation of (101) expenses of a railroad to different sections of its road, whether such sections be branch lines as distinguished from main lines, or sections of road set apart by state lines or other geographical boundaries, is a most difficult matter, if we be critical of the results. But granting that an acceptable separation and allocation of operating expenses and other costs is made and the amount charge-

able to a particular road section determined, it still remains necessary to separate those expenses between those which pertain to the rendering of service, the scope of which is strictly local, from that service the scope of which extends beyond the boundaries of the territory. Expenses having a local application relate to the gross revenues locally earned; those having the broader incidence relate to gross revenues only a part of which were locally earned. Granting again that an acceptable separation of operating expenses and other costs can be made which observes this distinction, it then becames necessary, if we are to ascertain the Net results of local operations, to make a consistently similar disposition of the gross revenues earned.

Gross revenues earned by the local service can readily be allocated to the territory in which earned. Those earned by the performance of an inter-territorial service, however, have to be apportioned, because the rates which are assessed for such service are not fabricated, generally speaking, of rates which individually cover separate sections of the road for which expenses, etc., were segregated. If the rates are not made on a "through" basis and expressed in one unit, they are generally the combination of unit-made rates which apply to sections of road or to territorial areas other than those for which the costs may have been determined. Save in the most exceptional instances—as in the case of the Railway's branches extending to Winston-Salem and Durham which lie wholly in Southern Classification Territory whereas the remainder of the system is situate in Official Classification Territory—the rates productive of gross revenues earned inter-territorially respect the average costs along the routes they cover, rather than the specific costs of individual portions of such routes. Sometimes, it is

(102) true, the incidence of rates as they respect costs, is broader yet. Rates may be made with respect to the average operating costs of an extensive territory such as Southern Classification Territory. In the case of Southern class rates fixed by the Interstate Commerce Commission in the Southern Class Rate adjustment heretofore mentioned, they have a common level in Southern Classification Territory generally, save in that part embracing the Florida peninsula.

If it is desired to determine the actual net results of railway operations in an isolated area which embraces only a part of a railroad system it is manifestly necessary to deal with actual operating expenses and actual gross revenue earnings peculiar to that area. The problems of separating the joint expenses as between those which are local and those which are interterritorial by nature, and then of determining the proportion of interterritorial expense which was locally incurred, have to be solved. The locally earned proportion of interterritorial gross revenue also has to be ascertained, as well as the amount of locally earned revenue. The solution of these problems would entail a vast amount of work and resultant expense, and require a great deal of time to dispose of the results of only one month's business. When finished, the accuracy of the results would be debatable, because the precise bases which should be observed in such procedure have never been authoritatively fixed so far as my knowledge goes. When the work was finished, however, the results would disclose only the average cost of earning a dollar's worth of revenue. It would necessarily be the Average cost, because it is impossible, from the "joint" character of the service rendered, to ascertain how much gross revenue was earned by each

individual dollar of expense. Many consignments of freight, for example, are transported in the same train, and in the same car on that train. We may refine the costs to the point of ascertaining with acceptable accuracy, let us say, the cost of transporting the car and its contents, and the empty back-haul, which represents the cost of transporting its revenue-yielding load. That is still a "joint" cost applicable to all consignments in the load and any result is unavoidably an average result. Because the principles which underlie the bases of com-
(103) pensation recognize the factor of service costs, the principal ingredient of which is operating expense, the use of the system operating ratio in conjunction with a mileage prorate of interterritorially earned gross revenue (which constitutes the predominant part of all gross revenue) is to employ an averaging process which is merely a little broader in its application than any other method which might be used to get at the net results. The gross revenue is averaged on a ratable basis, and so are the expenses. The net results reached by different methods might and probably would differ in some degree, but under the controlling circumstances it could never be established beyond reasonable doubt whether the difference constituted a fact, or the effect of error in method. A searching analysis of the practical conditions and circumstances reveals, to my satisfaction, at least, that in this particular case, and in other cases which I have considered in relation to it, the use of the system operating ratio for the purpose of ascertaining the operating expenses factor to be used in determining taxable income is not arbitrary in the sense that it is unreasonable, and in all probability is not unfair in the particular that it taxes net revenue which is not earned by the Railway within the state. If the state's formula developed net revenue by using the

system operating ratio in conjunction with actual gross revenue, that would overstate net revenue, because it has been shown that the branch line expenses are relatively higher than the average for the system, but the use of the system ratio would regard them as being on the same level. The Railway's contention is based on an hypothesis which is no less erroneous because it is merely the reverse. It uses the actual expenses, and a ratable average of interstate gross revenue. A comparison of interstate rate levels shows that rates are on a higher level in North Carolina than elsewhere on the system. Consequently the Railway's proposition seriously understates the net revenue.

To return to the discusion of Exhibit R-16, I have commented on the several lines of the exhibit down to and including the item of net revenue. The next item is Uncollectible Railway Revenue, which appears on lines A-14, B-14, and C-14. I have not used the amounts shown in Mr. Vaughan's Exhibit B for the respective years, but other amounts determined in the way he arrived at (104) his figures, which is to say, the proportion of the system total represented by the ratio which North Carolina gross revenues is to system gross revenue, using the North Carolina gross revenues set out on Lines A-11, B-11, and C-11 of this exhibit. The figures used by the state, as shown in Column J, were those originally reported by the carrier.

The items of taxes chargeable to the state are shown on Lines A-15, B-15, and C-15. There is no disagreement concerning the amount of taxes. The figures shown in Column I are the same as those used by the state, and shown in Mr. Vaughan's Exhibit B.

The item of "Operating Income Less Deductions," shown on Lines A-16, B-16, and C-16 is affected by the differences which I have previously discussed.

The last item shown on this exhibit before Taxable Income is Equipment Rentals-Credit. It appears on Lines A-17, B-17, and C-17. There is controversy concerning the amount included for this item each year. The state's auditors, in setting up the taxable income for the respective years, took a proportion of the credits representing car and locomotive hire which is the equivalent of a road mileage prorate. That is to say, in the ratio which the road mileage in North Carolina bore to the road mileage of the system for each year, they apportioned the net credits which represented the equipment rentals which the law specifies shall be considered in connection with the ascertainment of the formulated taxable income. The Railway considers that these rentals (which are net credits for each of the three years) should be apportioned to the state on the basis of the mileage made in the state and on the system, respectively, by the several classes of equipment which earned the net rental income. It maintains that the relatively lighter density of car and locomotive mileage on the North Carolina road mileage, as compared with the average for the system, results in assigning to the state a disproportionate part of the rental credits if road mileage, rather than wheelage, be used as the basis for the apportionment.

With respect to this point, the wording of the 1927 and 1929 North Carolina Revenue Acts, Sections 312, are (105) identical, and read as follows:

That in determining the taxable income of a corporation engaged in the business of operating a railroad under this section, in the case of a railroad located entirely within this state, the net railway operating income shall be increased or decreased to the extent of any credit or debit balance received or paid, as the case may be, on account of car or locomotive hire; and when any railroad is lo-

cated partly within and partly without this state, then said net operating income shall be increased or decreased to the extent of an equal mileage proportion within this state of any credit or debit balance received or paid, as the case may be, on account of car or locomotive hire.

To include in Taxable Income an "equal mileage proportion" of the net debit or net credit, as the case may be, of car and locomotive rentals is a part of the formula which the statute prescribes for the determination of taxable income.

Whether the "equal mileage proportion" be determined by using the road mileage, or the equipment mileage, as the basis, is a subordinate matter, because the main issue is whether Taxable Income found according to the formula constitutes a reasonable, or unreasonable, base for tax levy. To prorate equipment rentals, debit or credit, on either a road mileage or an equipment mileage basis is strictly arbitrary. The net amount of car rentals involved, which relate principally if not solely to freight cars in most cases, do not accrue on the basis of miles run by the car on which the rental accrues. If this were the case, the rentals received, which in this case predominate, would be based on the car-miles run on the railroads paying the rental, not on the Railway's own lines. Car rentals are collected and paid on a car-day basis, except in the case of privately owned cars of the tank and refrigerator classes and their rentals are relatively unimportant in amount. To dispose of car rentals on an actual basis, if indeed there is such a basis, or on a reasonable basis, if such a thing could be agreed upon, would require that both car-days and car-miles be considered. The car-day is the unit appropriate to distributing car hire based on per diem, and the car-mile applies where rental accrues on a car-mileage basis. In the first instance the place

where cars spend their days would denote the territory to which the rental paid should be charged. In the second instance, the place where the rented cars made their miles (106) would dictate where the rents paid should be charged. In the case of owned cars being rented to others on a per-diem basis, the matter of properly distributing the credit for rentals is not so simple. The car days are spent on other railroads. The cars rented may, or may not, have been replaced by other cars for which a rent is paid. The question becomes complicated but if the subject be examined in detail it will appear that but little can be said to support the equipment-mileage basis of apportionment, and that equally persuasive arguments can be advanced to favor the road-mileage basis of apportionment, particularly when the underlying premise is the matter of determining taxable income. The rolling stock of a railroad is merely the mobile part of a railroad plant. Theoretically, it would seem, every mile of the road is inherently entitled to its ratable share in the use of home-line cars and locomotives, as the need for that use manifests itself. If needful use does not materialize, and the rolling stock remains on hand, an entailed expense for maintenance, depreciation, interest on investment, and whatnot, it is a burden which the whole road must bear in common. From that and similar points of view, the road mileage basis of apportioning the debit or credit equipment rents can be viewed with justification. Locomotives generally are not rented on a miles-run basis, but on a time basis, and the same may be said of passenger-train cars.

It is perhaps fortunate, therefore, that the question which the Railway raises with regard to the apportionment of equipment rentals is not a controlling one, but a subordinate matter which disposes of itself so far as it

relates to the issue involed here. The main issue is the outcome of the formula.

In the preparation of this exhibit R-16 I have used the equipment rental credits which the Railway says should be used, taking them from Mr. Vaughan's Exhibit B, because those figures operate to reduce the taxable income which would be found pursuant to the formula if equipment rental credits prorated on a road-mileage basis were used. Substituting the Railway's figures for those used by the state reduces the credits assigned to the state by something more than a hundred thousand dollars each year.

The test of the reasonableness of the statutory form-
(107) ula really consists of a comparison of Column I with Column J on Lines A-18, B-18, and C-18 of this exhibit. If the formulated taxable income were excessive, and if the operations of the formula tended to submit to North Carolina taxation income not earned within that state, as the Railway alleges is the case, in that event the amount shown as Net Taxable Income in Column J of this exhibit would be in excess of the amounts shown in Column I. Column J shows the taxable income found by the state. Column I shows the taxable income produced by the consideration of actual instead of formulated factors, and reflects the reults of applying correctly the Railway's theory of proof.

By comparing Column J with Column I it may be noted that in each of the three years the state assessed its taxes upon a net taxable income which was less than the actual income earned in the state, and so much less, in fact, as to leave a margin of difference so great as to be sufficient to cover the probable amount of any infirmities which the factual basis shown in Column I may possibly possess. In 1927, the formulated Taxable Income was only

55.76% of the factual income; in 1923, 59%, and in 1929, 68.82%. These percentages appear in Column K.

The substantial amounts which constitute the differences between the approximate income on a factual basis and the net taxable income arrived at by the State's formula in no way reflect discredit upon the formula or the several processes which are component parts of it. These differences have but one significance, which is that the law is not, in this case at least, punitive in its effects. Many other forms of taxation of which we have common knowledge do not purport to use actual income, or actual property values, as the case may be, as taxation bases. Taxation methods generally employ special bases upon which to levy, and usually the basis is one readily determined and not controversial. This plan facilitates administration of the law and does not burden the taxpayer with avoidable trouble and expense. The State's formula possesses the laudable virtues of being simple in its application and considerate of the taxpayer's time and expense. In my professional opinion it is fair and not confiscatory as applied in this case.

Further examination of MR. ROBERTS on DIRECT EXAMINATION, by Mr. Seawell, on behalf of the State.

Q. Mr. Roberts, you had occasion to refer to some documents in the course of your testimony in this case. Please examine this and state what it is.

A. This document is a copy of the Illinois Freight Association Tariff Bureau, Freight Tariff No. 15, I. C. C. No. 110, issued by C. W. Galligar, Agent, and also F. L. Sedin, Agent, Tariff No. I. C. C. 1143, which was issued under date of December 1, 1927, and became effective January 15, 1928, and covers local and general

rates between stations in Illinois, Indiana, Iowa, Missouri and Wisconsin and stations in Alabama, Arkansas, Florida, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee and Virginia. Norfolk & Western Railway is one of the numerous roads concurring in this tariff. It was used by the public with regard to rates. It was one of several documents I examined.

Q. Look there and check such portion of it as relates to the Norfolk & Western Railway Company and its tariffs and rates, during the period which you mention.

A. It will take me most of the day to answer that question. The question is one very difficult to answer in the light of what tariff is. It would be very difficult but not impossible. The tariff speaks for itself.

By the Referee: Why is it necessary to refer to the tariff in his report?

Mr. Seawell: I don't want to do this. The State tenders this document as an exhibit, but only such parts of it as relate to the Norfolk & Western Railway tariffs and schedules for the period under consideration and which are referred to in the testimony of Mr. Roberts in this case.

The defendant objects to the introduction of a book of 150 pages.

Norfolk and Western Railway Company in due time and before such testimony was admitted, made and filed the following objections to the testimony of J. W. Roberts, offered by plaintiff:

OBJECTIONS OF NORFOLK & WESTERN RAILWAY COMPANY TO THE TESTIMONY OF J. W. ROBERTS.

North Carolina—Wake County.

In the Superior Court—Before Hon. J. Crawford, Biggs, Referee.

State of North Carolina on Relation of A. J. Maxwell, Commissioner of Revenue

v.

Norfolk & Western Railway Company.

I. Norfolk and Western Railway Company, except as hereinafter noted, objects to the testimony of J. W. Roberts as irrelevant and incompetent, upon the following grounds:

(1) The figures constituting "Gross Operating Revenues" of the Railway Company for the purposes of income taxation are not subject to review by the Court and evidence relative thereto is incompetent because:

(a) The allegations of the Commissioner of Revenue containing such figures are not denied by the Railway Company and are, therefore, taken to be true for the purposes of this action.

(b) There is no exception to the finding of fact by the Commissioner of Revenue which raises an issue of fact as to such figures.

(c) There is an admission of record by the Commissioner of Revenue that the figures are correct and that the statute has been followed.

(2) The testimony attempts to set up methods of arriving at "Gross Operating Revenues" contrary to the statute.

(3) The evidence atempts to show net income by the application of a method which is not authorized by the statute and is contrary to the provisions of the statute.

(4) The evidence is argumentative.

(5) The opinions expressed are not based upon testimony and are not competent as expert testimony.

Objection overruled; defendant excepts.

EXCEPTION No. A.

II. Defendant, except as hereinafter noted, objects specifically to question and answer No. 16, in the testimony of J. W. Roberts, comprising 97 pages, for reasons above set forth, and particularly to testimony comprised within pages 10 to 43, down to "Relationship of Rates to Operating Expenses," for reasons set forth above in objections numbered I, sub-divisions 1, a, b, and c.

Defendant does not object to the testimony of witness Roberts, beginning at the bottom of page 17, as follows:

"The Railway makes a monthly distribution of its revenues. For this purpose it uses the well-known punch card system. Under this system the salient facts are transcribed by punching holes in cards of standard size and design which can be sorted for distribution and totalized by electrically operated accounting machines of great speed and accuracy. A separate card is made for each consignment. With this detailed and flexible media and the use of high-speed automatic sorting and tabulating machinery the great volume of detail is brought under control . . . . . The mileage prorate requires a ratable distribution of revenue on the basis of the miles traversed by the consignment earning the revenue being distributed. For example, if a consignment was transported a total distance of 100 miles, of which 50 miles was in State A, 25 miles in State B, and 25 miles in State C, the revenue therefrom would be divisible

50/100ths to State A, 25/100ths to State B, and 25/100ths to State C."

Defendant admits that it uses the "well-known punch card system" and also admits that the taxing statute requires earned revenue to be spread over the entire haul and allocated to the State on a mileage prorate basis.

Objection overruled; defendant excepts.

EXCEPTION No. B.

III. Defendant, except as hereinafter noted, objects specifically to testimony of witness J. W. Roberts, where, contrary to the taxing statute, he undertakes to show "The Relationship of Rates to Operating Expenses," as covered by pages 43 to 107 inclusive, of his testimony, and particularly to his statement, at page 43, second paragraph, that

> "This phase of the subject may be approached by saying that the Net Revenue which may with propriety be included in Taxable Income is the difference between gross revenues actually earned, and the actual expenses which earned them," and at page 44, middle first paragraph, that
>
> "Freight rates lawfully assessed by the Railway for transporting freight over the branch lines serving North Carolina are on a much higher level than rates assessed for the same quantity and quality of service on other portions of its system,"

and to all of his unsupporting and unprovable facts, arguments, and opinions, conclusions, and argumentative analyses, all of which are not testimony, but have been adduced to support his theories, within pages 43-107 inclusive, for reasons herein stated, for reasons set forth

in objections numbered I, and for the further reason that his theories are neither based on law nor fact.

Defendant does not object to any of the statements of witness Roberts admitting the impossibility of proving his rate theories, typical of which admissions is his testimony at page 49, as follows:

"Railway accounting and statistical practice presently disregards the specific source of revenue, that is, whether it is derived from class rates or commodity rates, and likewise fails to distinguish the tons or ton-miles moving under each kind of rates. Therefore, we have no definite information concerning the monetary importance of differences in ratings and class rate levels as they affect the whole of gross revenue. To give such matters adequate consideration is virtually impossible,"

Defendant admits that it is impossible to determine, separately, the revenue that each and every rate earns on a shipment, and has followed the taxing statute, which, recognizing this impossibility, concurred in by witness, spreads the rates over the entire haul, and allocates revenue to the State, on a mileage prorate basis.

Objection overruled; defendant excepts.

EXCEPTION No. C.

IV. Defendant objects specifically to conclusions of witness Roberts, unsupported by law or fact, on "Gross Revenue From Coal Traffic," as set forth on page 57 of his testimony, last paragraph, and to the facts, arguments, opinions, and argumentative analyses, all of which are not testimony, but have been adduced in support of his conclusions, within pages 50-57, for reasons herein stated and for reasons set forth in objections numbered I, II, and III.

Objection overruled; defendant excepts.

EXCEPTION No. D.

V. Defendant, except as hereinafter stated, objects specifically to the conclusions of witness Roberts, unsupported by law or fact, and unintelligible, on "Gross Revenues From Class Rated Traffic," as set forth in the last paragraph of page 70, and to his unsupporting facts, arguments, opinions, and argumentative analyses all of which are not testimony, but have been adduced in support of his conclusions, within pages 58-70, for reasons herein stated and for reasons set forth in objections numbered I, II, III, and IV.

Defendant does not object to statement of witness Roberts on page 60a, line four, as follows:

"It is not feasible to develop in an orderly and precise fashion the facts which we need to know to determine the actual relationship between Actual gross earnings and the Actual expenses which earned them, which has been made an issue in this case."

Nor to other like statements in his testimony showing the utter impossibility of arriving at the actual revenues which are earned by innumerable rates on the railroad system. See, also, page 49 of Roberts' testimony, quoted at the top of page 4 herein.

Defendant does not object to statement of witness Roberts at the bottom of page 60b and at the top of page 61; but reserves the right to answer this inclusion therein: "In the absence of special studies which the railroads alone are in position to make, such attempts, must fall short of being complete and satisfactory"—Witness Roberts knows, as does everybody who is familiar therewith that not even the railroads can get reliable results out of such special studies as he has in mind. The full statement is as follows:

> "Any attempt to measure the relative altitudes of rates applicable to a particular section of a railroad encounters many difficulties, and chief among

them is the paucity of statistical data reflecting the volume of movement and revenues derived from different kinds of traffic. In the absence of special studies which the railroads alone are in position to make, such attempts must fall short of being complete and satisfactory. Their incompleteness may result in their being misleading in some degree unless their purpose and premises are fully understood. The great variety of traffic, the many different systems and schedules of rates which relate thereto, and the almost innumerable movements, preclude the selection of any reasonable number of individual shipments for presentation as representative instances, because we have no means of being sure that they are in fact representative."

nor to testimony of witness Roberts at the bottom of page 63, as follows:

"Now the effectiveness of these individual class ratios, the least of which is 174.24% and the greatest 287.50%, upon the aggregate gross revenue depends, of course, upon the volume of traffic moving under each class. As I have previously explained, we have the most meagre information bearing upon that point. In fact we have no information which relates to the business handled by the Railway over these branches during the years 1927, 1928, and 1929. The best light we have on that point is supplied by certain special studies of class-rated traffic moving at other times and over other railroads."

Defendant admits the utter impossibility of arriving at the revenues which each and every rate earns and so does the allocating taxing statute.

Objection overruled; defendant excepts.

EXCEPTION No. E.

VI. Defendant, except as hereinafter noted, objects specifically to conclusions of witness Roberts, unsupported by law or fact, on "Gross Revenues Derived From Commodity Rates," at the bottom of page 78, and top of page 79, of his testimony, and particularly to his conclusions at top of page 72, as follows:

> "As far as I have been able to analyze the situation, however, it appears that the high cost of operation on the branch lines serving North Carolina have also been recognized in fixing the levels of Commodity rates applicable over the branches,"

and to his unsupporting facts, arguments, opinions, and argumentative analyzes, all of which are not testimony, but have been adduced in support of his conclusions, within pages 71-79, for reasons herein stated and for reasons set forth in objections numbered I, II, III, IV, and V.

Defendant does not object to statement of witness Roberts, at page 71, second paragraph, where he disputes his own theory of higher rates on branch lines:

"Commodity rates are generally lower than Class Rates, and when both kinds of rates are published for the same movement the Commodity Rates prevail."

Defendant does not object to statement of witness Roberts at page 102, as follows:

> "In the case of Southern class rates fixed by the Interstate Commerce Commission in the Southern Class Rate adjustment heretofore mentioned, they have a common level in Southern Classification Territory generally, save in that part embracing the Florida peninsula."

Defendant admits that these rates are uniform on branch line and main line operations in Southern classifi-

cations territory as witness Roberts says, which proves that they were not raised to take care of admitted higher branch line expense.

Objection overruled; defendant excepts.

EXCEPTION No. F.

VII. Defendant objects specifically to the conclusions of witness Roberts, unsupported by law or facts, on "Through Class and Commodity Rates," at the end of page 84, and to his unsupporting facts, arguments, opinions, and argumentative analyses, all of which are not testimony, but have been adduced in support of his conclusions, for reasons herein stated and for reasons set forth in objections numbered I, II, III, IV, V, and VI.

Objection overruled; defendant excepts.

EXCEPTION No. G.

VIII. Defendant objects specifically to the conclusions of witness Roberts, unsupported by law or fact, on "Norfolk & Western's Reported Gross Revenues Earnings in North Carolina Compared With Reported Earnings of Other Roads Serving the State," at the end of page 88, last paragraph, and to his unsupporting facts, arguments, opinions, and argumentative analyses, all of which are not testimony, but have been adduced in support of his conclusions, within pages 85-88, for reasons set forth in objections numbered I, II, III, IV, V, VI, and VII.

Objection overruled; defendant excepts.

EXCEPTION No. H.

IX. Defendant objects specifically to conclusions of witness Roberts, unsupported by law or fact, and directly contrary to the taxing Statute, at pages 90 and 91, as follows:

"The significance of this situation is, that after having made a proper apportionment of gross revenue to the branch lines out of respect to the higher levels of rates which assuredly prevail thereon, the branch lines' gross revenues should then be reapportioned as between North Carolina and Virginia in the ratio of 119.76 to 100.00, in favor of North Carolina. Thereafter the North Carolina gross revenues would be in shape to compare with actual operating expenses in North Carolina, in the process of testing the reasonableness of the use of the system operating ratio applied to a mileage prorate of gross revenue."

and to his unsupporting facts, arguments, opinions, and argumentative analyses, all of which are not testimony, but have been adduced in support of his conclusions, within pages 89-91, for reasons herein stated and for the reasons set forth in objections numbered I, II, III, IV, V, VI, VII, and VIII.

Objection overruled; defendant excepts

EXCEPTION No. I.

X. Defendant admits that branch line expenses are higher than on the main line and excludes from the above objections, witness Roberts' admission of this admitted and proven fact, at pages 45, 72, 75, 76, 78, 103, and elsewhere, a typical admission of this fact being at page 45, as follows:

"On a unit basis, the branch line expenses are unquestionably the higher, principally due to relatively lighter traffic density, and operating obstacles in the way of grades and curves, which are excessive on the branches as compared with the balance of the system."

Defendant objects, specifically, for reasons hereinbefore set forth in objections numbered I, II, III, IV, V, VI, VII, VIII, and IX, to witness Roberts's testimony on page 100,

> "Now, one of the first, if not the very first, consideration encountered in making just and reasonable rates is that the rate shall be high enough to cover the cost of the service which earns it. This is true whether the rates apply to transportation over main lines, or branch lines, in this State or that state. It is a fundamental proposition."

because this statement is nothing more than a theory of the witness, unsupported by facts and contrary to the law of this case, and because, further, witness admits on page 102, that rates are uniform on branch lines and main lines, which is an admission that rates were not raised on branch lines, to take care of admittedly higher operating branch line cost: (Top of page 102.)

"In the case of Southern class rates fixed by the Interstate Commerce Commission in the Southern Class Rate adjustment heretofore mentioned, they have a common level in Southern Classification Territory generally, save in that part embracing the Florida peninsula."

Objection overruled; defendant excepts.

EXCEPTION No. J.

XI. Defendant objects specifically to the conclusions of witness Roberts, unsupported by law or fact, under his heading "Test of the Results of the Statutory Formula for Determining Taxable Income," at page 92, some typical conclusions being as follows:

(Page 103, end of first paragraph):

"A comparison of interstate rate levels shows that rates are on a higher level in North Carolina than elsewhere on the sytem. Consequently the Railway's proposition seriously understates the net revenue."

(Page 107, end of last paragraph):

"The State's formula possesses the laudable virtues of being simple in its application and consideration of the taxpayer's time and expense. In my professional opinion it is fair and not confiscatory as applied in this case."

And the defendant objects specifically to his unsupporting facts, arguments, opinions, and argumentative analyses, all of which are not testimony, but have been adduced in support of these unprovable conclusions, within pages 92-107, and elsewhere, in answer to question 16 of his testimony, for reasons herein stated, and for reasons set forth in objections numbered I, II, III, IV, V, VI, VII, VIII, IX, and X.

Objection overruled; defendant excepts.

EXCEPTION No. K.

Respectfully submitted,
THEODORE W. REATH,
F. M. RIVINUS,
W. W. COXE,
BURTON CRAIGE,
MURRAY ALLEN,
For Defendant.

In offering testimony in rebuttal of the testimony of J. W. Roberts, defendant, Norfolk and Western Railway Company, reserves and does not waive the foregoing objections to the testimony of J. W. Roberts.

DEFENDANT'S EVIDENCE (Rebuttal).

GOOCH VAUGHAN, recalled, testified as follows:

I am the same Gooch Vaughan that has previously testified in this case, stating, among other things, that you were Assistant to the Comptroller of the Railway?

Q. In objections heretofore filed by the State to your previous testimony, the State has questioned your qualifications to testify as an expert and the propriety of certain portions of your testimony. Describe briefly not only your own duties and experience, but also the functions and work of the Comptroller's office and the situation attending the production in Court of the records from which the [illegible] filed by you are prepared.

A. The Comptroller of the Railway is its chief accounting officer and the chief executive of the Accounting Department. Among other things, the Accounting Department has custody of and audits original records of the Railway's receipts from all sources and of its disbursements on all accounts, has custody of original records showing, among other things, passengers and freight moved, revenue therefrom, expense thereof, character, distance, tonnage, origin and destination thereof, prepares from such records data and computations for the use of the Railway's other departments and various financial and statistical reports to the various departments and commissions of the State and Federal Governments for tax, rate and other purposes, correlates financial and other data and makes special studies thereof for almost every conceivable purpose connected with the operation of the railroad. While primarily I am an accountant with over forty years' experience in the Railway's work, yet as Assistant to the Comptroller and by his direction and acting for him, I am an executive officer of the Rail-

way's Accounting Department, as such have custody and supervision of said records, am familiar with the various sub-divisions of said department and the functions and methods thereof and from time to time call thereon for the preparation or compilation of the figures from which I make special studies, reports or exhibits required for a given case. I have for many years made special studies for and testified in numerous tax and rate cases and in numerous other matters involved in hearings before State and Federal courts, commissions and departments.

There are at present 352 people directly employed in the Accounting Department. The various original papers that constitute the records from which the exhibits filed by me are prepared literally will fill a building and are so numerous that it would be impossible to produce or inspect same at any trial. With the exception of car and locomotive mileage and train mileage. The data and compilations embodied in my previous testimony and in the various exhibits that I have filed or will file in this case or which have come from the Accounting Department are the results of the work of the hundreds of clerks and of other departmental officials in the department transmitted to me through orderly departmental channels. All of such exhibits have been prepared and compiled under my direction and supervision and I have personally made most of the calculations involved thereon with the data thus furnished. Car and locomotive mileage and weight of cars and locomotives we obtain from the office of Superintendent of Transportation, who keeps original records showing these facts and who makes compilations summarizing them. When we desire data from another department, we request same from the head thereof, who compiles same through regular departmen-

tal sub-divisions and transmits same to us. I make the following qualifications to the above statement:

First: While records embodying the disbursements reflected by Exhibit C are in the Accounting Department, the separation of the Abingdon Branch expenses from the balance of the Pulaski District expenses, as reflected on Exhibit C, was done, as I have stated before, in the office of the then Division Superintendent, which in the case of this particular branch could, better than the Accounting Department, determine from its records the precise limits or stretches of road within which some of the expenditures were made. That office maintains means by which local separation of branch expense from district expense can to large extent be made. The Accounting Department can trace disbursements by operating districts but it is not always possible for it to designate the precise limits (within the district) within which the expenditures were made. Our department called upon the official head of the Radford Division (of which the Pulaski District is a part) for this separation, and he in turn had the data assembled by the appropriate sub-division of his department under his supervision and then transmitted the results to us. Here again the data came to us through regular departmental channels. But even the preparation of the data for this minor exhibit embodies the work of a number of clerks and the production and examination by the Court of all records from which it was prepared would be an impracticable matter.

Second: Mr. Conrad's Exhibit 12 was prepared in the Accounting Department under my direction and supervision and all of the data used therein except train and car miles used in the calculations involving them came from the Accounting Department records. The train and car miles were compiled by the Transportation Department from its records.

Whenever compilations of data are made in our office and used by us or furnished to another department, such for example as Mr. Conrad's, they represent what our records show. Our office is the final repository of the original records that I have mentioned or hereinafter mention as being therein.

Q. Mr. Vaughan, in the opening part of its testimony the State's witness, Roberts, has criticized the method employed by you in ascertaining the North Carolina gross freight revenue reflected on your Exhibit B for the years 1927 to 1929, inclusive. He describes the method that you have employed as the "dollar mile" method and states that it has not produced the true mileage prorate required by the statute. Is that correct?

A. Yes, Mr. Roberts is right in his criticism that the North Carolina interstate gross freight revenues reflected on Exhibit B for the years 1927 to 1929 are not a precise actual mileage prorate thereof, but are the result of a method of calculation adopted several years ago (long prior to the years involved in the present litigation) as a time and labor saving device that would produce an approximation sufficiently accurate for statistical purposes. No pretense was made by us that the method would produce anything but an approximation but it was thought that the approximation was sufficient for all practical purposes. Representatives from the State Taxing Department have been coming to Roanoke from time to time to examine our work in connection with the preparation of the tax reports for 1927-1929 and previous years and were familiar with the fact that we were employing this "dollar mile" method, and we were under the impression that it was entirely satisfactory to them. At any rate, no objection to the method was made by anyone until Mr. Roberts attacked it in his testimony. If at the beginning of this suit the State had advised us that

the method was not an acceptable one, we would have made our calculations strictly in accordance with the actual mileage prorate prescribed by the statute.

Since the filing of Mr. Roberts' testimony I have recomputed the Railway's net taxable income for each of the years 1927, 1928 and 1929 by recalculating the North Carolina interstate gross freight revenues upon the actual mileage prorate basis prescribed by the statute, and the results thereof are embodied upon an exhibit captioned "Substitute For Vaughan Exhibit No. B." The exhibit consists of three sheets, one for each of the years 1927, 1928 and 1929, and is marked "Revised February 8, 1933." On this "Substitute For Vaughan Exhibit No. B" we not only show precisely the same calculations that are embodied in original Exhibit B, but we contrast them with the corresponding revised figures resulting from the apportionment to North Carolina of gross interstate freight revenues upon the actual mileage prorate basis. In addition thereto, on this "Substitute For Vaughan Exhibit No. B" we have for each of the years 1927 to 1929 made a comparison of the State's ratio of operating expenses to gross revenues based on the three different results shown on the exhibit.

Q. Briefly, what is the net taxable income for each of the years 1927, 1928 and 1929 reflected by your re-calculation as shown upon Substitute for Vaughan Exhibit No. B?

A. For 1927 a deficit of $2,927.67, for 1928 a deficit of $83,701.08 and for 1929 a deficit of $107,261.65. The method used by us on original Exhibit B for computing uncollectible Railway revenues and car hire credit balance has been repeated in Substitute Exhibit B. If we adopt the State's method of computing car hire credits, we would have in 1927 a net taxable income of $116,898.26, in 1928 a net taxable income of $46,734.90 and

in 1929 a net taxable income of $24,662.13, but there would still be a difference between our figures and the State's figures for 1927 of $455,050.56, for 1928 of $510,983.33 and for 1929 of $602,564.97.

My re-calculation of North Carolina interstate gross freight revenues upon the actual mileage prorate basis made it necessary to revise some of the other exhibits prepared in the Comptroller's office and filed by either myself or Mr. Conrad with my or his previous testimony in this case.

Wherever any of the previous exhibits reflected gross freight revenues or calculations predicated thereon I have made revised exhibits to show the corresponding results predicated upon North Carolina gross interstate freight revenues calculated upon an actual mileage prorate basis. Reflecting these changes and re-calculations, I herewith file the following additional Substitute Exhibits, all of which have been prepared in my office and under my supervision:

(a) Substitute for Vaughan Exhibit No. A, composed of two sheets, Revised February 8, 1933.

(b) Substitute for Vaughan Exhibit No. E, Revised February 8, 1933.

(c) Substitute for Conrad Exhibit No. 7, composed of two sheets, Revised February 28, 1933.

Each of the above "Substitute" exhibits is intended to take the place of the original exhibit similarly lettered or numbered.

Q. One of the features of your former "dollar mile" method of computing North Carolina gross revenues that was criticized by Mr. Roberts was that when all of the Norfolk and Western revenue from a given interstate shipment was earned wholly within the State of North

Carolina, you did not give North Carolina the benefit of all thereof. For example, in the case of a shipment originating at Roxboro, N. C., destined for Atlanta, Ga., and going off our line at Durham, all of our revenue therefrom would be earned wholly within North Carolina. In your calculations of North Carolina gross freight revenues reflected on your Substitute Exhibit B, what classification did you make of such a shipment and what disposition did you make of the revenue therefrom?

A. We still treated the shipment as an interstate one, but we gave to North Carolina all of the revenue therefrom because all of it was earned within the State. For the purpose of making a revenue calculation, whether gross or net, or per mile of road, or per net ton mile, it does not make any difference whether the revenue from such a shipment is treated as intrastate or interstate,—the only important thing being that the State receives all of the revenue from such a shipment, because all of it was earned in the State; nor, so long as the State gets all the revenue, does it make any difference whether you call it intrastate or interstate. Hence, we have not made any change on Substitute Exhibit B of the total of intrastate revenues, the revenue from shipments of the kind mentioned being included in the revised interstate freight revenues.

In this connection, I might add that while the revised calculation of North Carolina freight revenues upon an actual mileage prorate basis results in augmenting not only the freight and gross operating revenues in North Carolina and also such revenues per mile of road in North Carolina, nevertheless as shown by said Substitute for Vaughan Exhibit A, the traffic density on that portion of the system outside of the State of North Carolina for the years 1927 to 1929 ranges from 7½ to 9 times greater than the traffic density in North Carolina, and

the revenue per mile of road for that portion of the system outside of North Carolina range from 4½ to 5 times greater than the revenues per mile of road in North Carolina.

Q. After having revised the North Carolina gross earnings by using the actual mileage prorate of freight revenues, by how much does the ratio of expenses to earnings in North Carolina exceed the system ratio?

A. As shown by Substitute for Vaughan Exhibit A, the system ratio of expenses to earnings for the years 1927 to 1929 respectively was 62.82% for 1927, 62.20% for 1928 and 56.15% for 1929, whereas North Carolina's ratios are 96.27% for 1927, 101.24% for 1928 and 102.40% for 1929. Hence for 1927 the North Carolina ratio exceeded the system ratio by 53%, for 1928 by 63%, and for 1929 by 82%.

In my answer to Question 5 of my former testimony I stated that the average difference for the years 1927 to 1929 inclusive between the Railway's computations of income and those of the State were roughly in the neighborhood of $800,000.00 per year. After having made my corrections by the use of the actual mileage prorate of North Carolina interstate freight revenues, these differences amount to:

For the year 1927, $574,876.49, for 1928, $641,-419.31, and for 1929, $734,488.75. These figures are merely calculations predicated upon those on Substitute Exhibit B.

Q. Is any revision necessitated of any of the figures in your answer to Question 3-a in your former testimony?

A. Yes, on account of the revision of gross operating revenues resulting from the use of the actual mileage prorate of interstate freight revenues, some revision is necessitated. I have therefore taken the liberty of recopying Question and Answer 3-a and of inserting over

the original figures the revised figures, and I herewith file same as a part of this answer as "Vaughan Revised Answer to Question 3-a."

I will state what the records are in my office from which I compute North Carolina's equal mileage proportion of gross interstate freight revenues, and what information they give me therefor.

Each individual shipment that moves over the Railway is represented by a waybill which shows, among other things, car initial and number, origin, destination, weight, commodity, route and total freight revenue. The waybill does not show the division of revenues between carriers.

In the case of a shipment moving only to and from local Norfolk and Western stations, the Accounting Department receives from our destination agent (and retains) the original waybill, but the information shown thereon is also copied by each destination agent on a report made to and retained by the Accounting Department and known as "Agent's Report of Waybills Received." We use sometimes the waybill and sometimes this report.

In the case of a shipment originating on our line but terminating off our line, the original waybill is retained by the destination carrier, but we retain in our office a duplicate copy thereof. The information shown thereby is, however, transferred by the destination carrier to a report which is sent to and retained by us, called "Foreign Line Settlement Abstract," which shows also the portion or division of the total freight revenues that the Norfolk and Western receives from the shipment. This "Foreign Line Settlement Abstract" is the basis of the destination carrier's settlement with us. The division of freight between carriers is not always an equal mileage division and this abstract is what reflects the actual division.

In the case of a shipment originating off our line and terminating on our line, the information shown on the original waybill (which we keep) is transferred by us to a report known as "Norfolk and Western Settlement Division Sheet," whereon is shown also the portion of the freight revenues that we receive from each shipment. This "Settlement Division Sheet" gives us data of the same character as that given us by the "Foreign Line Settlement Abstract."

In the case of a shipment originating off of our line and terminating off our line, we do not get either the original waybill or a copy thereof, but the information therefrom is transferred by the destination carrier to a report called "Foreign Line Settlement Division Sheet," which is sent us and which shows also, among other things, how much of the revenue the Norfolk and Western receives from the shipment, i.e., what division of the freight revenues is made to us. This "Foreign Line Settlement Division Sheet" gives us information of the same character as the "Foreign Line Settlement Abstract" and the "Norfolk and Western Settlement Division Sheet."

It will thus be seen that we have original or duplicate waybills covering all shipments except those that both originate and terminate off our line. However, we have means of checking and do check the accuracy of all four of the reports. Generally for convenience we use the reports in calculating our mileage apportionment of the freight revenues earned in a given state.

As we know, of course, the mileage between our stations and how much of the distance traveled lies in a given State, we can calculate from each of the above papers or reports the mileage percentage or proportion of our revenues that is earned in a given State.

Q. Mr. Vaughan, Mr. Roberts in his testimony has made reference to the loss of some of the "Punch Cards"

covering a portion of the period 1927-1929 and has indicated that owing to the loss of these "Punch Cards" an actual mileage prorate of gross freight revenues for those years could not be made. Please explain what a "Punch Card" is, and whether the loss of any or all of the 1927-1929 "Punch Cards" has in any way interfered with the making of an accurate mileage apportionment to North Carolina of gross freight revenues for any of the years in question?

A. A "Punch Card" is simply a card which is represented by symbolical holes punched at certain points thereon the information shown on each of the four reports above mentioned. There is a separate punch card for each individual shipment or group of shipments moving between the same points. The punch card, in short, is itself a mere abstract to which is transferred by intermediate means the information shown by the waybill. The object of transferring the information to the punch card is that these cards can be mechanically operating at astonishing speed upon machines especially designed therefor and they afford economical means of compiling, checking and sorting information in connection with station accounting, auditing and for statistical purposes generally. The same card is capable of use for a number of different calculations. It contains other information than that embodied in the four reports that I have mentioned. The information upon the individual punch cards is then grouped and totaled and transferred (by mechanical operation of the cards themselves) to a report called "Station to Station Abstract Sheet," which shows in a summary way the same information that is shown by all of the punch cards individually. Hence, the "Station to Station Abstract Sheet" shows also in condensed form what is shown by the four reports first above described. With this information condensed on the "Station to Sta-

tion Abstract Sheet" we have made the same calculations that we could have made from the four said reports first described. Hence, while some punch cards were destroyed in 1930 under the impression that they were no longer needed, we still have the "Station to Station Abstract Sheets" for those years showing in grouped and aggregated form what the punch cards showed individually, and from such "Station to Station Abstract Sheets" we have made an actual mileage apportionment to North Carolina of its portion of the revenue from each and every interstate shipment moving to or from it over our lines for the years 1927, 1928 and 1929.

Q. Are the "Station to Station Abstract Sheets" that you are now using precisely identical with those that you were using in 1927-1929?

A. They are not precisely identical in form but for the purpose of the actual mileage apportionment they reflect the same essential information. The "Station to Station Abstract Sheet" that we are now using is an improvement over that used in 1927-1929 in that it gives the percentage that the North Carolina mileage is of the total distance traveled by a given shipment, whereas the 1927-1929 Abstract Sheet showed the mileage traveled by the shipment in North Carolina but did not state what the percentage was of the total distance traveled. In making our actual mileage prorate from the 1927-1929 Abstract Sheets we had to translate manually each North Carolina mileage figure into percentage.

I will describe somewhat more in detail just how the "Station to Station Abstract Sheet" is prepared from the individual punch cards.

The individual punch cards are first grouped or classified by what is known as a "Station to Station" group or classification; that is to say, for example, that all of the

shipments to Durham, N. C., from Columbus, Ohio, are grouped together and the aggregate revenue from all of them is reflected on the "Station to Station Abstract." The mileage traveled in North Carolina is exactly the same for all of the shipments in this group. This mileage also is reflected on the "Station to Station Abstract" by a percentage of the total distance traveled, and then North Carolina's mileage proportion of the total revenue from this group of shipments is calculated and reflected on the "Station to Station Abstract." This operation is repeated for each and every station in North Carolina—shipments to as well as shipments from. The North Carolina revenue from each of the group of shipments is then aggregated or totaled and this total constitutes an actual mileage apportionment to North Carolina of its portion of the revenue from each and every shipment moving into or from the State over the Railway.

Q. Up to what stage is the mechanics of the "dollar mile" method of calculation the same as the actual mileage prorate calculation?

A. Up to and including the "Station to Station Abstract" the processes and mechanics of both methods are the same. Different kinds of calculations are then applied to the information shown on the "Station to Station Abstract."

Q. How did you arrive at the results to which you testified in Answers 10, 12 and 14 of your previous testimony?

A. As stated therein, we made a special study of that matter for the year 1927, the result being reflected on Exhibit J, on which were grouped under both Primary and General Accounts the respective expenses of the Railway and whether they had been assigned or apportioned,

and from these figures were made calculations obtaining from relation to the total expense of each account.

Q. Mr. Vaughan, I notice that there is some difference between some of the totals of expenses as reflected on Conrad Exhibit No. 7, which you prepared, and your Vaughan Exhibit No. J, Sheet 5. Will you kindly state whether this difference is real or merely apparent and what is the occasion thereof?

A. There is an apparent difference of $33,940.11 for the year 1927 between the total operating expenses shown in total on sheet No. 5 of Vaughan Exhibit No. J and the total used in Conrad Exhibit No. 7, viz.:

Conrad Exhibit No. 7 shows	$1,520,935.32,
Whereas detail on sheet 5 of Vaughan Exhibit J totals	1,486,995.21
A difference of	$ 33,940.11

This difference has been occasioned by the apportionment to North Carolina of the actual expenses for the Abingdon Branch as furnished by Superintendent Radford Division, being used in arriving at total operating expenses used on Conrad Exhibit No. 7, and the elimination of expenses which had been apportioned to the Abingdon Branch, but which were not pertinent thereto; see Vaughan Exhibit L filed herewith and same is headed "Reconciliation of Expenses for Year 1927, included in Vaughan Exhibits B and J and Conrad Exhibit No. 7."

EXHIBIT—VAUGHAN REVISED ANSWER TO QUESTION 3(a)

(Sheet No. 1 of 4 sheets)

Changes Caused by Re-apportionment of Interstate Freight Revenues

Q. 3(a)—You have heard Mr. Conrad's testimony to the effect that operating costs are higher on the Rail-

way's lines entering North Carolina than on the main line and on the balance of the system and the reasons therefor. Does the method by which the Railway computes its income tax returns for the State produce results that are in harmony with Mr. Conrad's conclusions?

A. 3(a)—Yes, Mr. Conrad's testimony shows that the ratio of expenses to earnings is substantially higher in North Carolina than on the main line and the system as a whole, and our method of computing income returns results in the same conclusions. Roughly speaking, Mr. Conrad's evidence as a whole deals with unit cost, whereas the Accounting Department in computing income returns is dealing with the apportionment of total cost. The fact, however, that my figures do confirm substantially at least what was to be expected from his, indicates that our accounting method of apportioning North Carolina expense produces results sufficiently close to realities for practical purposes.

To illustrate in a general way my statement that our accounting methods produce results in harmony with what was to be expected from Mr. Conrad's testimony, it will be observed from Mr. Conrad's Exhibit 7 that for 1929 the system ratio of expenses to earnings was 56.15%. This applied to the North Carolina revenues for that year produces the 1929 North Carolina operating expense of $792,174.51 shown on that exhibit. Now, as shown by my Exhibit A, Sheet 2, also on my substitute for "A," the 1929 system transportation costs were 39.21% of all system operating expense, system maintenance of way and structures was 22.47% of all system operating expense and system maintenance of equipment was 31.56% of all system expense. Hence, 39.21% of $792,174.51 would be what the State computes trans-

EXHIBIT—VAUGHAN REVISED ANSWER TO QUESTION 3(a)

(Sheet 2 of 4 sheets)

portation costs to be in North Carolina, and this, as shown on substitute for Conrad Exhibit No. 7, amounts to $310,662.20; 22.47% of said $792,174.51 represents the State's computation of maintenance of way costs in North Carolina, and this, on said substituted exhibit, is $177,904.20, and 31.56% of said $792,174.51 represents the State's computation of maintenance of equipment expense in North Carolina, and this, as shown by substitute for Conrad Exhibit No. 7, is $249,997.01.

Now, among other things Conrad's testimony shows that train fuel and wages alone, which are a part only of what are classed as "transportation" expenses, are on the Winston District substantially 2½ times larger per gross ton mile than on the system, and on the Durham District are substantially three times larger per gross ton mile than on the system; that the ratio of maintenance of way and structures expense to earnings increases as volume of traffic diminishes and that where train and car load are light, more engines and more cars are required to carry the same volume of traffic. Hence, from these three items alone we would expect to find that the amount of money actually spent in North Carolina for such fuel and wages and for maintenance of way and equipment was far in excess of the amounts produced by the application of system ratio figures to North Carolina revenues.

Dealing then with the extent to which we would expect to find the North Carolina 1929 transportation expense of $310,662.20, as determined by system ratio, augmented by the actual expense incurred in North Carolina for train fuel and train wages alone, it will be noted that for the system these items of train fuel and train wages constitute approximately, as shown by the 1929 Annual

Report of the Railway, 40% of the entire system transportation expense. 40% of the $310,662.20 would produce $124,264.88 as what the system ratio allots for train fuel and train wages in North Carolina. Now, we know definitely and exactly what we spent for train fuel and wages on the branches and districts entering North

EXHIBIT—VAUGHAN REVISED ANSWER TO QUESTION 3(a)

(Sheet No. 3 of 4 sheets)

Carolina and North Carolina's portion of these items, according to our apportionment, is $296,000.00—a difference of approximately $172,000.00 on these items alone, and in a rough way in the neighborhood of what is to be expected, treating train fuel and wages per gross ton mile on the branches entering North Carolina as being roundly 2½ times greater than on the system.

In short, to the State's 1929 total expense figure of $792,174.51 as corrected by substitute for Conrad's Exhibit No. 7, there should be added for the cost of train fuel and wages alone something in the neighborhood of $172,000.00.

Another illustration is the Maintenance of Way and Structures expense. There is no reason why there should be any material difference mile per mile in such expense between Virginia and North Carolina. Hence, a mileage division of such expense between the states has been made and North Carolina's portion thereof for the year 1929 is $359,598.40. The system Maintenance of Way ratio as applied to $792,174.51 as corrected is for the year 1929 $177,904.20, a difference of $181,694.20 from the actual expense, which is in line with Conrad's testimony that the ratio of Maintenance of Way expense to earnings increases as volume of traffic diminishes. Hence, we would naturally expect to find the State's 1929 figure

of $792,174.51 as corrected materially augm[redacted] Maintenance of Way expense alone. Th[redacted]20 of increased Maintenance of Way exp[redacted]e plus increased expense from train fuel and wages itself makes a difference of roughly $353,000.00.

Again applying Mr. Conrad's testimony to Maintenance of Equipment expense, we expect from Mr. Conrad's Answer 12 to find this item also substantially twice as great as system ratio results, for the reasons that Mr. Conrad has given, namely, that where the train and car load are light, more engines and more cars are required to carry the same volume of traffic, and accordingly using 1929 as an illustration, we find that in our apportionment it is one-third greater, or as shown by Conrad Exhibit No. 7, $154,695.49 more than what the system ratio gives. This $154,695.49 added to the rough figure of

EXHIBIT—VAUGHAN REVISED ANSWER TO QUESTION 3(a)

(Sheet No. 4 of 4 sheets)

$353,000.00 heretofore given would make the increase from train fuel and wages, Maintenance of Way and Maintenance of Equipment alone roughly $531,000.00 and this added to the $792,000.00 as corrected of State total 1929 expense makes a figure of over $1,323,000.00; or, from these three items alone, a figure within roughly $121,000.00 of the total expense for 1929 calculated by the Railway.

I will not attempt to carry the illustrations any further, but what I have said is enough to show that our Accounting Department method of apportionment of total expense is conservative, fair to North Carolina and in line with what was to be expected from Mr. Conrad's figures.

Substitute for
Vaughan Exhibit No. "A"
Sheet No. 1 of 2 sheets.
(Revised February 8, 1933).

NORFOLK AND WESTERN RAILWAY COMPANY

Statement of Freight Traffic, showing separation between State of North Carolina, Balance of System, and Entire System, also Gross Railway Operating Revenues.

CALENDAR YEAR 1927

	Intra-State		
	North Carolina	Balance of System	Total
Mileage operated	131.05	2,110.70	2,241.75
Tons	67,775	3,735,111	3,802,886
Tons-one-mile	1,496,434	273,976,454	275,472,888
Tons-one-mile per mile of road	11,419	129,804	122,883
Freight revenue	$ 65,391.82	$ 5,266,614.19	$ 5,332,006.01
Freight revenue per mile of road	$ 498.98	$ 2,495.20	$ 2,378.50
Average haul (miles)	22.08	73.35	72.44
Gross Railway operating revenues	$ 107,506.29	$ 9,090,015.57	$ 9,197,521.86
Gross Railway operating revenues per mile of road	$ 820.35	$ 4,306.64	$ 4,102.83

	Inter-State		
Mileage operated	131.05	2,110.70	2,241.75
Tons	2,862,949	48,180,725	51,043,674
Tons-one-mile	120,652,517	14,628,221,743	14,748,874,260
Tons-one-mile per mile of road	920,660	6,930,507	6,579,179
Freight revenue	$ 1,288,891.41	$ 93,371,337.68	$ 94,660,229.09
Freight revenue per mile of road	$ 9,835.11	$ 44,237.14	$ 42,226.04
Average haul (miles)	42.14	303.61	288.95
Gross Railway operating revenues	$ 1,472,344.25	$100,278,334.53	$101,750,678.78
Gross Railway operating revenues per mile of road	$ 11,234.98	$ 47,509.52	$ 45,388.95

	Grand Total		
Mileage operated	131.05	2,110.70	2,241.75
Tons	2,930,724	51,915,836	54,846,560
Tons-one-mile	122,148,951	14,902,198,197	15,024,347,148
Tons-one-mile per mile of road	932,079	7,060,311	6,702,062
Freight revenue	$ 1,354,283.23	$ 98,637,951.87	$ 99,992,235.10
Freight revenue per mile of road	$ 10,334.10	$ 46,732.34	$ 44,604.54
Average haul (miles)	41.68	287.05	273.93
Gross Railway operating revenues	$ 1,579,850.54	$109,368,350.10	$110,948,200.64
Gross Railway operating revenues per mile of road	$ 12,055.33	$ 51,816.15	$ 49,491.78

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

CALENDAR YEAR 1928

	Intra-State		
	North Carolina	Balance of System	Total
Mileage operated	131.01	2,110.45	2,241.46
Tons	79,574	3,442,419	3,521,993
Tons-one-mile	1,483,823	257,799,060	259,282,883
Tons-one-mile per mile of road	11,326	122,154	115,676
Freight revenue	$ 62,428.38	$ 4,969,633.47	$ 5,032,061.85
Freight revenue per mile of road	$ 476.52	$ 2,354.77	$ 2,244.99
Average haul (miles)	18.65	74.89	73.62
Gross Railway operating revenues	$ 99,469.38	$ 8,397,625.67	$ 8,497,095.05
Gross Railway operating revenues per mile of road	$ 759.25	$ 3,979.07	$ 3,790.88
	Inter-State		
Mileage operated	131.01	2,110.45	2,241.46
Tons	2,652,990	47,878,493	50,531,483
Tons-one-mile	113,064,062	14,643,338,455	14,756,402,517
Tons-one-mile per mile of road	863,019	6,938,491	6,583,389
Freight revenue	$ 1,179,245.13	$ 91,290,276.54	$ 92,469,521.67
Freight revenue per mile of road	$ 9,001.18	$ 43,256.31	$ 41,254.15
Average haul (miles)	42.62	305.84	292.02
Gross Railway operating revenues	$ 1,338,392.03	$ 97,111,624.30	$ 98,450,016.33
Gross Railway operating revenues per mile of road	$ 10,215.95	$ 46,014.65	$ 43,922.27

CALENDAR YEAR 1928

	Grand Total		
Mileage operated	131.01	2,110.45	2,241.46
Tons	2,732,564	51,320,912	54,053,476
Tons-one-mile	114,547,885	14,901,137,515	15,015,685,400
Tons-one-mile per mile of road	874,345	7,060,645	6,699,065
Freight revenue	$ 1,241,673.51	$ 96,259,910.01	$ 97,501,583.52
Freight revenue per mile of road	$ 9,477.70	$ 45,610.75	$ 43,499.14
Average haul (miles)	41.92	290.35	277.79
Gross Railway operating revenues	$ 1,437,861.41	$105,509,249.97	$106,947,111.38
Gross Railway operating revenues per mile of road	$ 10,975.20	$ 49,993.72	$ 47,713.15

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

CALENDAR YEAR 1929

	Intra-State		
	North Carolina	Balance of System	Total
Mileage operated	131.01	2,109.08	2,240.09
Tons	55,305	3,125,108	3,180,413
Tons-one-mile	1,297,140	248,851,772	250,148,912
Tons-one-mile per mile of road	9,901	117,990	111,669
Freight revenue	$ 58,437.24	$ 4,845,084.06	$ 4,903,521.30
Freight revenue per mile of road	$ 446.05	$ 2,297.25	$ 2,188.98
Average haul (miles)	23.45	79.63	78.65
Gross Railway operating revenues	$ 91,350.47	$ 7,987,966.03	$ 8,079,316.50
Gross Railway operating revenues per mile of road	$ 697.28	$ 3,787.42	$ 3,606.69
	Inter-State		
Mileage operated	131.01	2,109.08	2,240.09
Tons	2,664,509	53,867,873	56,532,382
Tons-one-mile	113,614,898	16,366,544,561	16,480,159,459
Tons-one-mile per mile of road	867,223	7,760,040	7,356,919
Freight revenue	$ 1,158,272.53	$102,289,704.79	$103,447,977.32
Freight revenue per mile of road	$ 8,841.10	$ 48,499.68	$ 46,180.28
Average haul (miles)	42.64	303.83	291.52
Gross Railway operating revenues	$ 1,319,467.89	$108,232,967.21	$109,552,435.10
Gross Railway operating revenues per mile of road	$ 10,071.51	$ 51,317.62	$ 48,905.38

CALENDAR YEAR 1929

			Grand Total
Mileage operated	131.01	2,109.08	2,240.09
Tons	2,719,814	56,992,981	59,712,795
Tons-one-mile	114,912,038	16,615,396,333	16,730,308,371
Tons-one-mile per mile of road	877,124	7,878,030	7,468,588
Freight revenue	$ 1,216,709.77	$107,134,788.85	$108,351,498.62
Freight revenue per mile of road	$ 9,287.15	$ 50,796.93	$ 48,369.26
Average haul (miles)	42.25	291.53	280.18
Gross Railway operating revenues	$ 1,410,818.36	$116,220,933.24	$117,631,751.60
Gross Railway operating revenues per mile of road	$ 10,768.78	$ 55,105.04	$ 52,512.07

Office of Comptroller,
Roanoke, Virginia,
August 3, 1931.
(Revised February 8, 1933)
(15)

Substitute for
Vaughan Exhibit No. "A"
Sheet No. 2 of 2 sheets.
(Revised February 8, 1933)

NORFOLK AND WESTERN RAILWAY COMPANY

Railway Operating Expenses—Entire Line and North Carolina—Ratio to Gross Operating Revenues.

YEAR 1927

	Entire Line		North Carolina including N. C. portion of Abingdon Branch on basis of Superintendent's figures	
	Amount	Ratio	Amount	Ratio
Gross railway operating revenues (Note No. 1)	$110,948,200.64		$ 1,579,850.54	
Railway operating expenses:				
Maintenance of way and structures	15,711,540.40	14.16	347,524.63	21.99
Maintenance of equipment	21,261,404.42	19.16	418,206.37	26.47
Traffic	1,340,033.90	01.21	20,031.22	01.27
Transportation	28,988,768.59	26.13	698,755.49	44.23
Miscellaneous operations	275,429.66	00.25	284.14	00.02

General	2,558,173.40	02.31	38,360.93	02.43
Transportation for investment—Credit	439,224.74	00.40	2,227.46	00.14
Total	$ 69,696,125.63	62.82	$ 1,520,935.32	96.27

Ratio of Each Class of Operating Expenses to Total Operating Expenses

Maintenance of way and structures	22.54	22.85
Maintenance of equipment	30.51	27.50
Traffic	01.92	01.32
Transportation	41.59	45.94
Miscellaneous operations	00.40	00.02
General	03.67	02.52
Transportation for Investment—Credit	00.63	00.15
	100.00	100.00

NOTE No. 1: North Carolina freight revenues based on "Actual Mileage Pro Rate."

Office of Comptroller,
Roanoke, Virginia,
August 3, 1931.
(Revised February 8, 1933)
(15)

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

	Year 1928			
	Entire Line		North Carolina including N. C. portion of Abingdon Branch on basis of Superintendent's figures	
	Amount	Ratio	Amount	Ratio
Gross railway operating revenues (Note No. 1)	$106,947,111.38		$ 1,437,861.41	
Railway operating expenses:				
Maintenance of way and structures	15,475,724.65	14.47	327,356.59	22.77
Maintenance of equipment	19,933,551.65	18.64	408,012.08	28.38
Traffic	1,360,490.46	01.27	21,306.73	01.48
Transportation	26,608,500.41	24.88	654,208.66	45.50
Miscellaneous operations	245,895.27	00.23	201.89	00.01
General	3,110,151.52	02.91	47,733.07	03.32
Transportation for investment—Credit	212,618.25	00.20	3,195.28	00.22
Total	$ 66,521,695.71	62.20	$ 1,455,623.74	101.24

Ratio of Each Class of Operating Expenses to Total Operating Expenses—*Continued*

Maintenance of way and structures	23.26	22.49
Maintenance of equipment	29.97	28.03
Traffic	02.04	01.46
Transportation	40.00	44.95
Miscellaneous operations	00.37	00.01
General	04.68	03.28
Transportation for Investment—Credit	00.32	00.22
	100.00	100.00

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

YEAR 1929

	Entire Line		North Carolina including N. C. portion of Abingdon Branch on basis of Superintendent's figures	
	Amount	Ratio	Amount	Ratio
Gross railway operating revenues (Note No. 1)	$117,631,751.60		$ 1,410,818.36	
Railway operating expenses:				
Maintenance of way and structures	14,838,067.14	12.61	359,598.40	25.49
Maintenance of equipment	20,848,612.11	17.72	404,692.50	28.69
Traffic	1,442,058.81	01.23	21,079.37	01.49
Transportation	25,897,415.49	22.02	617,763.86	43.79
Miscellaneous operations	238,800.06	00.20	193.13	00.01
General	2,917,444.11	02.48	44,310.07	03.14
Transportation for investment—Credit	131,150.56	00.11	2,932.77	00.21
Total	$ 66,051,247.16	56.15	$ 1,444,704.56	102.40

Ratio of Each Class of Operating Expenses to Total Operating Expenses—*Continued*

Maintenance of way and structures	22.47	24.89
Maintenance of equipment	31.56	28.01
Traffic	02.18	01.46
Transportation	39.21	42.76
Miscellaneous operations	00.36	00.01
General	04.42	03.07
Transportation for Investment—Credit	00.20	00.20
	100.00	100.00

NOTE No. 1: North Carolina freight revenues based on "Actual Mileage Pro Rate."

Substitute for
Vaughan Exhibit No. "B"
Sheet No. 1 of 3 sheets.
(Revised February 8, 1933)

NORFOLK AND WESTERN RAILWAY COMPANY

Statement showing Comparison of Income Tax Return to State of North Carolina for Year 1927—"As Audited by State" and "As Corrected by N. & W. Ry. Co., including North Carolina Proportion of Freight Revenue Based on the 'Dollar-Mile' Prorate"; also "Using North Carolina Proportion of Freight Revenue Based on an 'Actual-Mileage' Prorate.

	As Audited by State of North Carolina	
INTRASTATE REVENUES:		
Acct. 101—Freight	$ 65,391.82	
Acct. 102—Passenger	22,654.82	
All Other Revenues	19,459.65	
Total Intrastate Revenues		$ 107,506.29
INTERSTATE REVENUES:		
Acct. 101—Freight	$1,093,045.95	
Acct. 102—Passenger	84,733.57	
All Other Revenues	98,719.27	
Total Interstate Revenues		1,276,498.79
Gross Operating Revenues		1,384,005.08
DEDUCTIONS:		
Railway Operating Expenses	$ 869,431.99	
Uncollectible Ry. Revenues	802.42	
Taxes Paid in the State:		
State	10,751.69	
County	82,718.41	
Municipal	9,701.25	
Total Deductions		973,405.76
Operating Income less Deduc.		$ 410,599.32

As Corrected by N. & W. Ry. Co. including North Carolina Proportion of Freight Revenue Based on the "Dollar-Mile" Prorate.		Using North Carolina Proportion of Freight Revenue Based on an "Actual-Mileage" Prorate.	
$ 65,391.82		$ 65,391.82	
22,654.82		22,654.82	
19,459.65		19,459.65	
	$ 107,506.29		$ 107,506.29
$1,093,045.95		$1,288,891.41	
84,733.57		84,733.57	
98,719.27		98,719.27	
	1,276,498.79		1,472,344.25
	1,384,005.08		1,579,850.54
$1,520,935.32—See Note (1)		$1,520,935.32—See Note (1)	
171.75		195.11	
10,751.69		10,751.69	
82,718.41		82,718.41	
9,701.25		9,701.25	
	1,624,278.42		1,624,301.78
	$ 240,273.34		$ 44,451.24

Substitute for
Vaughan Exhibit No. "B"
Sheet No. 1 of 3 sheets.
(Revised February 8, 1933)

As Audited by State of
North Carolina

Add or deduct any credit or debit balance received or paid on account of car hire:		
503 Hire of Freight Cars----	157,129.36	
504 and 537—Rent from Loc.	5,297.58	
505 and 538—Rent from Pass. Train Cars----------	1,077.44	
Total Credit for Car Hire-----		161,349.50
Net Taxable Income----------		$ 571,948.82
Ratio of Ry. Operating Exp. to Gross Operating Revenues		62.82%

NOTE (1): Includes Abingdon Branch Operating Expenses based on Superintendent's figures.

Office of Comptroller,
Roanoke, Virginia,
November 10, 1932—GV/EH
(Revised February 8, 1933)
GV/A—(15)

As Corrected by N. & W. Ry. Co. including North Carolina Proportion of Freight Revenue Based on the "Dollar-Mile" Prorate.		Using North Carolina Proportion of Freight Revenue Based on "Actual-Mileage" Prorate.	
39,410.41		39,410.41	
2,578.01		2,578.01	
464.85		464.85	
	41,523.57		41,523.57
	$ 198,749.77		$ 2,927.67
	109.89%		96.27%

Substitute for
Vaughan Exhibit No. "B"
Sheet No. 2 of 3 sheets.
(Revised February 8, 1933)

NORFOLK AND WESTERN RAILWAY COMPANY

Statement showing Comparison of Income Tax Return to State of North Carolina for Year 1928—"As Audited by State" and "As Corrected by N. & W. Ry. Co., including North Carolina Proportion of Freight Revenue Based on the 'Dollar-Mile' Prorate"; also "Using North Carolina Proportion of Freight Revenue Based on 'Actual-Mileage' Prorate."

	As Audited by State of North Carolina	
INTRASTATE REVENUES:		
Acct. 101—Freight	$ 62,428.38	
Acct. 102—Passenger	17,622.85	
All Other Revenues	19,418.15	
Total Intrastate Revenues		$ 99,469.38
INTERSTATE REVENUES:		
Acct. 101—Freight	1,047,066.80	
Acct. 102—Passenger	65,044.56	
All Other Revenues	94,102.34	
Total Interstate Revenues		1,206,213.70
Gross Operating Revenues		1,305,683.08
DEDUCTIONS:		
Railway Operating Expenses	812,134.88	
Uncollectible Ry. Revenues	424.64	
Taxes—State	10,751.69	
County	86,127.18	
Municipal	11,548.00	
Total Deductions		920,986.39
Operating Income less Deduc.		384,696.69

As Corrected by N. & W. Ry. Co. including North Carolina Proportion of Freight Revenue Based on the "Dollar-Mile" Prorate.		Using North Carolina Proportion of Freight Revenue Based on "Actual-Mileage" Prorate.	
$ 62,428.38		$ 62,428.38	
17,622.85		17,622.85	
19,418.15		19,418.15	
	$ 99,469.38		$ 99,469.38
1,047,066.80		1,179,245.13	
65,044.56		65,044.56	
94,102.34		94,102.34	
	1,206,213.70		1,338,392.03
	1,305,683.08		1,437,861.41
1,455,623.74—See Note (1)		1,455,623.74—See Note (1)	
88.71		97.44	
10,751.69		10,751.69	
86,127.18		86,127.18	
11,548.00		11,548.00	
	1,564,139.32		1,564,148.05
	258,456.24		126,286.64

Substitute for
Vaughan Exhibit No. "B"
Sheet No. 2 of 3 sheets.
(Revised February 8, 1933)

As Audited by State of
North Carolina

Add or deduct any credit or debit balance received or paid on account of car hire:		
503 Hire of Freight Cars----	167,672.44	
504 and 537—Rent from Loc.	4,124.73	
505 and 538—Rent from Pass. Train Cars----------	1,224.37	
Total Credit for Car Hire-----		173,021.54
Net Taxable Income----------		$ 557,718.23
Ratio of Ry. Operating Exp. to Gross Operating Revenues		62.20%

NOTE (1): Includes Abingdon Branch Operating Expenses based on Superintendent's figures.

Office of Comptroller,
Roanoke, Virginia,
November 10, 1932
(Revised February 8, 1933)
GV/A—(15)

As Corrected by N. & W. Ry. Co. including North Carolina Proportion of Freight Revenue Based on the "Dollar-Mile" Prorate:		Using North Carolina Proportion of Freight Revenue Based on an "Actual-Mileage" Prorate.	
39,988.01		39,988.01	
2,077.48		2,077.48	
520.07		520.07	
	42,585.56		42,585.56
	$ 215,870.68		$ 83,701.08
	111.49%		101.24%

Substitute for
Vaughan Exhibit No. "B"
Sheet No. 3 of 3 sheets,
(Revised February 8, 1933)

NORFOLK AND WESTERN RAILWAY COMPANY

Statement showing Comparison of Income Tax Return to State of North Carolina for Year 1929—"As Audited by State" and "As Corrected by N. & W. Ry. Co., including North Carolina Proportion of Freight Revenue Based on the 'Dollar-Mile' Prorate"; also "Using North Carolina Proportion of Freight Revenue Based on an 'Actual-Mileage' Prorate.

	As Audited by State of North Carolina	
INTRASTATE REVENUES:		
Acct. 101—Freight	$ 58,437.24	
Acct. 102—Passenger	11,899.03	
All Other Revenues	21,014.20	
Total Intrastate Revenues		$ 91,350.47
INTERSTATE REVENUES:		
Acct. 101—Freight	1,047,949.33	
Acct. 102—Passenger	50,237.87	
All Other Revenues	110,957.49	
Total Interstate Revenues		1,209,144.69
Gross Operating Revenues		1,300,495.16
DEDUCTIONS:		
Railway Operating Expenses	730,228.03	
Uncollectible Ry. Revenues	1,998.26	
Taxes—State	21,503.38	
County	78,873.57	
Municipal	10,693.02	
Total Deductions		843,296.26
Operating Income less Deduc.		457,198.90

As Corrected by N. & W. Ry. Co. including North Carolina Proportion of Freight Revenue Based on the "Dollar-Mile" Prorate.		Using North Carolina Proportion of Freight Revenue Based on an "Actual-Mileage" Prorate.	
$ 58,437.24		$ 58,437.24	
11,899.03		11,899.03	
21,014.20		21,014.20	
	$ 91,350.47		$ 91,350.47
1,047,949.33		1,158,272.53	
50,237.87		50,237.87	
110,957.49		110,957.49	
	1,209,144.69		1,319,467.89
	1,300,495.16		1,410,818.36
1,444,704.56—See Note (1)		1,444,704.56—See Note (1)	
379.16		409.90	
21,503.38		21,503.38	
78,873.57		78,873.57	
10,693.02		10,693.02	
	1,556,153.69		1,556,184.43
	255,658.53		145,366.07

Substitute for
Vaughan Exhibit No. "B"
Sheet No. 3 of 3 sheets.
(Revised February 8, 1933)

		As Audited by State of North Carolina
Add or deduct any credit or debit balance received or paid on account of car hire:		
503 Hire of Freight Cars	166,182.92	
504 and 537—Rent from Loc.	2,859.22	
505 and 538—Rent from Pass. Train Cars	986.06	
Total Credit for Car Hire		170,028.20
Net Taxable Income		$ 627,227.10
Ratio of Ry. Operating Exp. to Gross Operating Revenues		56.15%

NOTE (1): Includes Abingdon Branch Operating Expenses based on Superintendent's figures.

Office of Comptroller,
Roanoke, Virginia,
November 10, 1932

As Corrected by N. & W. Ry. Co. including North Carolina Proportion of Freight Revenue Based on the "Dollar-Mile" Prorate.		Using North Carolina Proportion of Freight Revenue Based on "Actual-Mileage" Prorate.	
36,302.24		36,302.24	
1,379.41		1,379.41	
422.77		422.77	
	38,104.42		38,104.42
	$ 217,554.11		$ 107,261.65
	111.09%		102.40%

Substitute for
Vaughan Exhibit "E"
(Revised February 8, 1933)

NORFOLK AND WESTERN RAILWAY COMPANY

Uncollectible Railway Revenues Apportioned to the State of North Carolina on Basis of Gross Operating Revenues

		Year 1927	
		Amount	N. C. Proportion
Railway Operating Revenues:			
Entire System	$110,948,200.64		
(x) North Carolina	1,579,850.54		
Ratio	01.42%	$ 13,740.03	$ 195.11
		Year 1928	
Railway Operating Revenues:			
Entire System	$106,947,111.38		
(x) North Carolina	1,437,861.41		
Ratio	01.34%	$ 7,271.30	$ 97.44

	Year 1929		
Railway Operating Revenues:			
Entire System	$117,631,751.60		
(x) North Carolina	1,410,818.36		
Ratio	01.20%	$ 34,158.32	$ 409.90

(x)—North Carolina Freight Revenues based on "Actual Mileage prorate."

Statement of Taxes Paid in North Carolina

	Year 1927		
	Assessment	Taxes Paid	
		Amount	Per Mile
Miles of road owned			130.74
Tangible Property used in Operation (Assessed by State Authorities):			(Average Levy 171.40c)
Counties and Municipalities	$ 5,321,778	$ 91,217.86	$ 698
Real Estate not used in Operation:			
Counties and Municipalities	54,067	1,201.80	9

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

Statement of Taxes Paid in North Carolina—*Continued*

	Assessment	Taxes Paid	
		Amount	Per Mile
YEAR 1927			
Franchise Tax:	(At one-fifth of 1%)		
State—based on assessed value of all property	5,375,845	10,751.69	82
		$ 103,171.35	$ 789
YEAR 1928			
Miles of road owned			130.74
Tangible Property used in Operation (Assessed by State Authorities):			(Average Levy 180.12c)
Counties and Municipalities	$ 5,321,778	$ 96,333.15	$ 737
Real Estate not used in Operation:			
Counties and Municipalities	54,067	1,342.03	10

Franchise Tax:	(At one-fifth of 1%)		
State—based on assessed value of all property	5,375,845	10,751.69	82
		$ 108,426.87	$829

		YEAR 1929	
Miles of road owned			130.74
Tangible Property used in Operation (Assessed by State Authorities):			(Average Levy 165.76c)
Counties and Municipalities	$ 5,321,778	$ 88,212.37	$ 675
Real Estate not used in Operation:			
Counties and Municipalities	54,067	1,354.22	10
Franchise Tax:	(At two-fifths of 1%)		
State—based on assessed value of all property	5,375,845	21,503.38	165
		$ 111,069.97	$ 850

Office of Comptroller,
Roanoke, Virginia,
August 4, 1931—GV/EH
(Revised February 8, 1933)
GV/A—(15)

Substitute for
Conrad Exhibit No. 7.
Sheet No. 1 of 2 sheets.

NORFOLK AND WESTERN RAILWAY COMPANY

Statement Showing Comparison of Operating Expenses as Computed by Norfolk and Western Railway Company and as Determined by State Using Operating Ratio, (Using Corrected Figures for Railway Operating Revenues).

	Expense in N. C. as per Exhibit "B" on Mileage Prorate for Durham and Winston-Salem Dist. and Actual Figures for Abingdon Branch	Expenses in North Carolina using System Operating Ratio		Increase or Decrease
YEAR 1927				
Maintenance of Way and Structures	$ 347,524.63	$223,706.84	Dec.	$123,817.79
Maintenance of Equipment:				
Locomotive Repairs, Depr. and Retirements	248,427.58	141,238.63	Dec.	107,188.95
Freight Car Repairs, Depr. and Retirements	117,274.55	107,429.84	Dec.	9,844.71
Passenger Car Repairs, Depr. and Retirements	21,302.30	13,112.76	Dec.	8,189.54
All Other M. E. Expenses	31,201.94	40,918.13	Inc.	9,716.19
Total M. E. Expenses	418,206.37	302,699.36	Dec.	115,507.01

Traffic Expenses	20,031.22	19,116.19	Dec.	915.03
Transportation	698,755.49	412,814.94	Dec.	285,940.55
Miscellaneous Operations	284.14	3,949.63	Inc.	3,665.49
General	38,360.93	36,494.55	Dec.	1,866.38
Transportation for Investment—Cr.	**2,227.46**	**6,319.40**	Dec.	4,091.94
Total	1,520,935.32	992,462.11	Dec.	528,473.21
YEAR 1928				
Maintenance of Way and Structures	$ 327,356.59	$208,058.55	Dec.	$119,298.04
Maintenance of Equipment:				
Locomotive Repairs, Depr. and Retirements	265,812.41	132,858.39	Dec.	132,954.02
Freight Car Repairs, Depr. and Retirements	87,332.42	85,121.40	Dec.	2,211.02
Passenger Car Repairs, Depr. and Retirements	20,239.19	12,221.82	Dec.	8,017.37
All Other M. E. Expenses	34,628.06	37,815.76	Inc.	3,187.70
Total M. E. Expenses	408,012.08	268,017.37	Dec.	139,994.71
Traffic Expenses	21,306.73	18,260.84	Dec.	3,045.89
Transportation	654,208.66	357,739.92	Dec.	296,468.74
Miscellaneous Operations	201.89	3,307.08	Inc.	3,105.19
General	47,733.07	41,841.76	Dec.	5,891.31
Transportation for Investment—Cr.	**3,195.28**	**2,875.72**	Inc.	319.59
Total	1,455,623.74	894,349.80	Dec.	561,273.94

Substitute for
Conrad Exhibit No. 7.
Sheet No. 1 of 2 sheets.

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

	Expense in N. C. as per Exhibit "B" on Mileage Prorate for Durham and Winston-Salem Dist. and Actual Figures for Abingdon Branch	Expenses in North Carolina using System Operating Ratio	Increase or Decrease
YEAR 1929			
Maintenance of Way and Structures	$ 359,598.40	$177,904.20	Dec. $181,694.20
Maintenance of Equipment:			
Locomotive Repairs, Depr. and Retirements	266,348.63	124,434.18	Dec. 141,914.45
Freight Car Repairs, Depr. and Retirements	82,110.64	80,980.97	Dec. 1,129.67
Passenger Car Repairs, Depr. and Retirements	19,592.53	10,440.06	Dec. 9,152.47
All Other M. E. Expenses	36,640.70	34,141.80	Dec. 2,498.90
Total M. E. Expenses	404,692.50	249,997.01	Dec. 154,695.49

Traffic Expenses	21,079.37	17,353.06	Dec.	3,726.31
Transportation	617,763.86	310,662.20	Dec.	307,101.66
Miscellaneous Operations	193.13	2,821.64	Inc.	2,628.51
General	44,310.07	34,988.30	Dec.	9,321.77
Transportation for Investment—Cr.	2,932.77	1,551.90	Inc.	1,380.87
Total	1,444,704.56	792,174.51	Dec.	652,530.05

Office of Comptroller,
Roanoke, Virginia,
July 28, 1931.
(Revised February 28, 1933)
GV/RF (20)

Substitute for
Conrad Exhibit No. 7.
Sheet No. 2 of 2 sheets.

NORFOLK AND WESTERN RAILWAY COMPANY

Statement showing computations used in arriving at figures used in column headed "Expenses in North Carolina using System Operating Ratio," appearing on sheet No. 1 of this Exhibit.

FOR YEAR 1927

		N. C. Proportion of Operating Expenses
MAINTENANCE OF WAY AND STRUCTURES EXPENSES:		
North Carolina Gross Revenues	$ 1,579,850.54 x 14.16% =	$223,706.84
MAINTENANCE OF EQUIPMENT EXPENSES:		
Vaughan Exhibit "A" Sheet No. 2, only shows the "Total Ratio" for Maintenance of Equipment Expenses, therefore, it was necessary to make the following computations, based on Entire System figures, viz:		

Locomotive repairs, depreciation and retirements	$ 9,913,600.14	— 8.94%	
Freight-train car repairs, depreciation and retirements	7,546,765.14	— 6.80%	
Passenger-train car repairs, depreciation and retirements	924,669.88	— 0.83%	
All other Maintenance of Equipment accounts	2,876,369.26	— 2.59%	
Total Maintenance of Equipment	$ 21,261,404.42	— 19.16%	
The above amounts divided by the Entire System Gross Revenues of	$110,948,200.64		

Equals the "Ratios" set opposite the several items, and applying same to the North Carolina Gross Revenues, we have the following results, viz:

Locomotive repairs, depreciation and retirements	$ 1,579,850.54 x	8.94% =	141,238.63	
Freight-train car repairs, depreciation and retirements	$ 1,579,850.54 x	6.80% =	107,429.84	
Passenger-train car repairs, depreciation and retirements	$ 1,579,850.54 x	0.83% =	13,112.76	
All other Maintenance of Equipment accounts	$ 1,579,850.54 x	2.59% =	40,918.13	
Total Maintenance of Equipment	$ 1,579,850.54 x	19.16% =		302,699.36

Substitute for
Conrad Exhibit No. 7.
Sheet No. 2 of 2 sheets.

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

FOR YEAR 1927

		N. C. Proportion of Operating Expenses
TRAFFIC EXPENSES: North Carolina Gross Revenues	$ 1,579,850.54 x 1.21% =	19,116.19
TRANSPORTATION EXPENSES: North Carolina Gross Revenues	$ 1,579,850.54 x 26.13% =	412,814.94
MISCELLANEOUS OPERATIONS: North Carolina Gross Revenues	$ 1,579,850.54 x 0.25% =	3,949.63
GENERAL EXPENSES: North Carolina Gross Revenues	$ 1,579,850.54 x 2.31% =	36,494.55

TRANSPORTATION FOR INVESTMENT—CR.: North Carolina Gross Revenues	$ 1,579,850.54 x 0.40% =	6,319.40
TOTAL OPERATING EXPENSES AS AUDITED BY STATE AUTHORITIES: North Carolina Gross Revenues	$ 1,579,850.54 x 62.82% =	$992,462.11

NOTE: Vaughan Exhibit No. "A" includes the basic figures used in computing the Ratio of Operating Expenses to Gross Revenues, also the "Ratios."

Office of Comptroller,
Roanoke, Virginia,
August 6, 1931.
(Revised February 28, 1933)
V/A—(20)

Substitute for
Conrad Exhibit No. 7.
Sheet No. 2 of 2 sheets.

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

FOR YEAR 1928

		N. C. Proportion of Operating Expenses
MAINTENANCE OF WAY AND STRUCTURES EXPENSES:		
North Carolina Gross Revenues	$ 1,437,861.41 x 14.47% =	$208,058.55
MAINTENANCE OF EQUIPMENT EXPENSES:		
Vaughan Exhibit "A", Sheet No. 2, only shows the "Total Ratio" for Maintenance of Equipment Expenses, therefore, it was necessary to make the following computations, based on Entire System figures, viz:		
Locomotive repairs, depreciation and retirements	$ 9,882,797.16 — 9.24%	

Freight-train car repairs, depreciation and retirements	6,324,628.38	—	5.92%
Passenger-train car repairs, depreciation and retirements	911,415.13	—	0.85%
All other Maintenance of Equipment accounts	2,814,710.98	—	2.63%
Total Maintenance of Equipment	$ 19,933,551.65	—	18.64%
The above amounts divided by the Entire System Gross Revenues of	106,947,111.38		

Equals the "Ratios" set opposite the several items, and applying same to the North Carolina Gross Revenues, we have the following results, viz:

Locomotive repairs, depreciation and retirements	$ 1,437,861.41	x	9.24%	= 132,858.39	
Freight-train car repairs, depreciation and retirements	$ 1,437,861.41	x	5.92%	= 85,121.40	
Passenger-train car repairs, depreciation and retirements	$ 1,437,861.41	x	0.85%	= 12,221.82	
All other Maintenance of Equipment accounts	$ 1,437,861.41	x	2.63%	= 37,815.76	
Total Maintenance of Equipment	$ 1,437,861.41	x	18.64%	=	268,017.37

Substitute for
Conrad Exhibit No. 7.
Sheet No. 2 of 2 sheets.

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

FOR YEAR 1928

				N. C. Proportion of Operating Expenses
TRAFFIC EXPENSES:				
North Carolina Gross Revenues	$ 1,437,861.41	x 1.27%	=	18,260.84
TRANSPORTATION EXPENSES:				
North Carolina Gross Revenues	$ 1,437,861.41	x 24.88%	=	357,739.92
MISCELLANEOUS OPERATIONS:				
North Carolina Gross Revenues	$ 1,437,861.41	x 0.23%	=	3,307.08
GENERAL EXPENSES:				
North Carolina Gross Revenues	$ 1,437,861.41	x 2.91%	=	41,841.76

TRANSPORTATION FOR INVESTMENT—CR.:			
North Carolina Gross Revenues	$ 1,437,861.41 x	0.20% =	2,875.72
TOTAL OPERATING EXPENSES AS AUDITED BY STATE AUTHORITIES:			
North Carolina Gross Revenues	$ 1,437,861.41 x	62.20% =	$894,349.80

Substitute for
Conrad Exhibit No. 7.
Sheet No. 2 of 2 sheets.

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

FOR YEAR 1929

			N. C. Proportion of Operating Expenses
MAINTENANCE OF WAY AND STRUCTURES EXPENSES:			
North Carolina Gross Revenues	$ 1,410,818.36	12.61% =	$177,904.20
MAINTENANCE OF EQUIPMENT EXPENSES:			
Vaughan Exhibit "A", Sheet No. 2, only shows the "Total Ratio" for Maintenance of Equipment Expenses, therefore, it was necessary to make the following computations, based on Entire System figures, viz:			
Locomotive repairs, depreciation and retirements	$ 10,376,261.53	— 8.82%	

Freight-train car repairs, depreciation and retirements	6,746,914.37 —	5.74%	
Passenger-train car repairs, depreciation and retirements	877,902.94 —	0.74%	
All other Maintenance of Equipment accounts	2,847,533.27 —	2.42%	
Total Maintenance of Equipment	$ 20,848,612.11 —	17.72%	
The above amounts divided by the Entire System Gross Revenues of	117,631,751.60		

Equals the "Ratios" set opposite the several items, and applying same to the North Carolina Gross Revenues, we have the following results, viz:

Locomotive repairs, depreciation and retirements	$ 1,410,818.36 x	8.82%	=	124,434.18	
Freight-train car repairs, depreciation and retirements	$ 1,410,818.36 x	5.74%	=	80,980.97	
Passenger-train car repairs, depreciation and retirements	$ 1,410,818.36 x	0.74%	=	10,440.06	
All other Maintenance of Equipment accounts	$ 1,410,818.36 x	2.42%	=	34,141.80	
Total Maintenance of Equipment	$ 1,410,818.36 x	17.72%	=		249,997.01

Substitute for
Conrad Exhibit No. 7.
Sheet No. 2 of 2 sheets.

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

FOR YEAR 1929

				N. C. Proportion of Operating Expenses
TRAFFIC EXPENSES: North Carolina Gross Revenues	$	1,410,818.36 x	1.23% =	17,353.06
TRANSPORTATION EXPENSES: North Carolina Gross Revenues	$	1,410,818.36 x	22.02% =	310,662.20
MISCELLANEOUS OPERATIONS: North Carolina Gross Revenues	$	1,410,818.36 x	0.20% =	2,821.64
GENERAL EXPENSES: North Carolina Gross Revenues	$	1,410,818.36 x	2.48% =	34,988.30

TRANSPORTATION FOR INVESTMENT—CR.: North Carolina Gross Revenues	$ 1,410,818.36 x 0.11% =	1,551.90
TOTAL OPERATING EXPENSES AS AUDITED BY STATE AUTHORITIES: North Carolina Gross Revenues	$ 1,410,818.36 x 56.15% =	$792,174.51

Vaughan Exhibit No. "L"

NORFOLK AND WESTERN RAILWAY COMPANY

Reconciliation of Expenses for the year 1927 included in Vaughan Exhibits "B" and "J" and Conrad Exhibit No. 7

M. W. & S.	M. of E.	Traffic	Transportation	Miscel. Opera'ns.	General	Trans. Invest.—Cr.	Total
			Sheet No. 1 of Conrad Exhibit No. 7				
$347,524.63	$418,206.37	$20,031.22	$698,755.49	$ 284.14	$38,360.93	$2,227.46	$1,520,935.32
			Sheet No. 5 of Vaughan Exhibit "J"				
313,550.96	429,077.31	21,171.04	683,860.91	1,122.72	40,963.34	2,751.07	1,486,995.21
+33,973.67	—10,870.94	—1,139.82	+14,894.58	— 838.58	—2,602.41	— 523.61	+ 33,940.11
(1)	(2)	(4)	(3)	(5)	(6)	(7)	(8)

Actual expense on Abingdon Branch—North Carolina Proportion—as shown on Vaughan Exhibit "C" prepared by Superintendent	$131,504.47	
Amount shown on Vaughan Exhibit "J", sheet No. 5, on a "Wheelage" basis	97,564.36	33,940.11

Conrad Exhibit No. L

		Over	Under
Vaughan Exhibit "C" totals of Abingdon Branch for:			
M. W. & S. $ 99,192.70 Wages, Work Trains $ 6,582.23 $105,774.93x 51.54%= North Carolina proportion	$54,516.39		
Amount shown on Exhibit "J" for North Carolina proportion of M. W. & S.	20,542.72	$ 33,973.67 (1)	
Vaughan Exhibit "C" total of Abingdon Branch for M. of E.: $ 28,447.44 x 51.54%= North Carolina proportion	$14,661.81		
Amount shown on Exhibit "J" for North Carolina proportion of M. of E.	25,532.75		$10,870.94 (2)
Vaughan Exhibit "C" total of Abingdon Branch for Transportation: $120,927.95 x 51.54%= North Carolina proportion	$62,326.27		
Amount shown on Exhibit "J" for North Carolina proportion of Transportation	$47,431.69	14,894.58 (3)	
		$48,868.25	$10,870.94

NORFOLK AND WESTERN RAILWAY COMPANY—*Continued*

Net amount added to North Carolina proportion of Abingdon Branch expenses to bring same to actual figures compiled by Superintendent		$ 37,997.31
Deduct expenses which were included in "Wheelage" apportionment to Abingdon Branch but are not applicable thereto, viz:		
Traffic	$ 1,139.82 (4)	
Miscellaneous Operations	838.58 (5)	
General	2,602.41 (6)	
	$ 4,580.81	
Less: Transportation for Investment—Cr.	523.61 (7)	4,057.29
Leaves net difference shown as an addition on Vaughan Exhibit "J", sheet No. 5		$33,940.11 (8)
Total North Carolina expenses shown in detail on Vaughan Exhibit "J"	$1,486,995.21	
Difference between "prorated" and "actual" expenses for North Carolina proportion of Abingdon Branch	33,940.11 (8)	
Total expenses on Conrad Exhibit No. 7 and Vaughan Exhibit "B" for year 1927	$1,520,935.32	

Office of Comptroller,
Roanoke, Virginia,
March 1, 1933.
GV/A—(20)

C. F. KEELEY, being duly sworn, testified as follows:

I will state my name, residence and occupation, how long I have been employed by the Norfolk and Western Railway Company, and in what capacities.

I entered the service of the Norfolk and Western Railway Company in the Freight Traffic Department in the summer of 1909. I left the employ of the Railway in 1910 but again re-entered Railway service in the Fall of 1912. From 1912 until sometime during the year 1918 I was successively stenographer, Rate Quotation Clerk, Tariff Compilation Clerk and Assistant Executive Clerk in the General Freight Agent's Office. During the war period I was transferred to the Transportation Department to supervise the work of the Embargo Bureau, that work comprising a combination of both rate and transportation duties. In 1925 I was again re-transferred to the Freight Traffic Department as Assistant Commerce Agent, and in February, 1927, I was appointed Commerce Agent. While Assistant Commerce Agent and Commerce Agent my duties were to act as witness for my company in complaints before the Interstate Commerce Commission and the various state regulatory bodies concerning freight rates from, to and between all points on our railroad.

During the time I was Commerce Agent the complaint of the North Carolina Corporation Commission in ICC Docket No. 21665 was filed with the Interstate Commerce Commission and I represented my company at all of the meetings of the defendants to prepare for the trial in this case and I attended two of the hearings in Raleigh.

In June, 1931, I was appointed Assistant General Freight Agent and I was assigned to the work of supervising the handling of rate adjustments from, to and between points in Southern Classification territory. With

the exception of the time that I was in the Railway's Transportation Department I have been engaged in the study and preparation of rates and tariffs and as such have acquired reasonable familiarity with the rate structure over the entire Eastern part of the United States. The Freight Traffic Department of the Railway is the department that, among other things, makes the Railway's rates and tariffs and is the repository of its records pertaining thereto. I am an executive officer of the Freight Traffic Department.

Q. Please refer to statement of Witness Roberts on page 44 of his testimony reading: "Freight rates lawfully assessed by the Railway for transporting freight over the branch lines serving North Carolina are on a much higher level than rates assessed for the same quantity and quality of service on other portions of its system," and state whether or not this is an accurate estimate of the relative rate levels on the Durham and Winston-Salem Districts of the Norfolk and Western Railway as contrasted with other portions of the system.

A. Mr. Roberts' statement is an unprovable generalization, and in my opinion is incorrect. In support of this generalization he presents only selected data that he regards as favorable and fails to mention what is unfavorable, thereby exhibiting only part of the picture. I think I can show that if all of the features in connection with these rate adjustments are considered, the conclusion is inescapable that it is impossible to determine the relative rate levels.

I will describe the location of the Norfolk and Western Railway and the different rate territories in which it is situated.

I offer as my Exhibit No. 1 a map of the Norfolk and Western Railway and its connections. The line (shown on this map) from Norfolk, Va., to Bristol, Va.-Tenn.,

is in what is known as Official Classification territory and is the dividing line between Southern Classification territory to the South and Official Classification territory to the North.

The branch line extending from Lynchburg, Va., 117 miles southward to Durham, N. C., known as our Durham District, is in what is known as Southern Classification territory. This line practically parallels the main line of the Southern Railway from Lynchburg, Va., to Danville, Va., crosses the Richmond-Danville line of that company at South Boston, Va., and crosses the Norfolk-Danville line of that company at Denniston, Va. East of the line of the Southern Railway from Burkeville, Va., to Danville, Va., another portion of the Southern Railway, known as its Keysville Branch, again parallels the Durham District and intersects it at Durham, N. C. Still east of the Southern Railway's Keysville Branch the line of th S.A.L. Ry. from Petersburg, Va., runs directly to Durham and intersects our Durham District at that point.

The branch line running from Roanoke, Va., 121 miles to Winston-Salem, N. C., known as our Winston-Salem District, is also in Southern territory. This line substantially parallels the Southern Railway's line from Lynchburg to Danville and Greensboro, and thence to Winston-Salem. The line of the Danville & Western Railway from Danville to Stuart crosses our Winston-Salem District at Martinsville, Va., and the line of the Atlantic and Yadkin Railroad from Greensboro to Mt. Airy crosses our line at Walnut Cove and intersects it at Madison.

The Durham and Winston-Salem District branch lines are the only part of the Norfolk and Western Railway in Southern territory. A portion of our Abingdon Branch beyond White Top touches North Carolina but does not

connect with any other railroad other than the N. & W.'s original main line at Abingdon, Va. Consequently, except as to North Carolina intrastate traffic, the Abingdon Branch is located in Official Classification territory.

As heretofore stated, all of the Railway's lines north of and including the Norfolk-Bristol line are in Official Classification territory, but at the crossing of the Ohio River at Kenova, W. Va., there is a sub-division (of Official classification territory) known as Central Freight Association territory, and all of our lines north and west of Kenova to Cincinnati and Columbus are in this sub-division. The line south and east of Kenova, except the two branches leading down to North Carolina, are in a subdivision of Official Classification territory known as Trunk Line territory.

Our Bristol and Norton lines and branches therefrom, as to the territorial location of which Witness Roberts is doubtful, are, from the foregoing, seen to be in Official territory, and the Interstate Commerce Commission has so held in several instances.

I will describe, in a brief way, the factors which are responsible for the rate systems which were applicable from and to points on the Norfolk and Western during the years 1927-1929, inclusive.

Competition of the competing lines and the rate systems on those competing lines are the principal factors. Our east and westbound lines between the Atlantic Seaboard and our Western termini (Columbus and Cincinnati, Ohio) are in competition with the principal lines lying to the north of us (between the Eastern seaports and the West), upon which there is a system of class and commodity rates having as its base the New York-Chicago rate. Our east and westbound rates, regulated by the east and westbound competition of more northerly carriers, are, with certain important exceptions, rela-

tively lower than any other rates in any other direction on our railroad. This is to be borne in mind in considering the data assembled by Witness Roberts. Nearly all of the rates which he has selected for comparison with the rates to points on our Durham and Winston Districts have been from the east and westbound low rates.

Our north and southbound system of rates is likewise the result of competitive influences, the rates over our Carolina branches particularly being determined by the north and south competing lines of the Southern Railway, Seaboard Air Line, Atlantic Coast Line and others, the first two of which had, at the time of the Railway's acquisition of the Winston and Durham Districts, rates in effect to Winston and Durham. This north and southbound system of rates is, as a general proposition, higher than the east and westbound system above mentioned. But here again important exceptions exist.

Q. Then Witness Roberts' statement on page 45 of his testimony, reading: "The freight rates which produce gross revenue on the branch lines entering North Carolina have always been adjusted to respect the higher operating costs on those branches," is not correct?

A. It is not. The main lines of the Southern, Seaboard Air Line, Atlantic Coast Line and Norfolk and Southern Railways all lie in Southern Classification territory with our Durham and Winston-Salem branches and have the same level of rates as do these branches. It was not branch operating costs that determined these branch rates. Their level was influenced primarily by the existence of these parallel lines and the competition we had to meet from them at common points such as Denniston, South Boston and Durham on the Durham Branch, and Martinsville, Madison, Walnut Cove and Winston-Salem on the Winston-Salem branch. In addition, the level of those rates was influenced by the necessity of observing,

at intermediate points on the branches, the long and short haul clause of the Interstate Commerce Act, known as the "Fourth Section," by the low rates prescribed by the North Carolina Corporation Commission on North Carolina intrastate business, and by the various rate advances that have from time to time been made throughout large rate territories to provide needed additional revenue for carriers generally in those territories and which had no necessary relation to the costs of operation on any individual line.

The Norfolk and Western does not receive the entire income from such rates as are in effect over its Durham and Winston districts.

Probably 75% of the business handled over the Winston-Salem and Durham districts is received from and/or delivered to connecting lines, and to these connecting lines we have to concede heavy divisions disproportionate to the relative amount of service they perform. Witness Roberts in his Exhibits 9, 10, 12 and 16 undertakes to estimate our North Carolina earnings upon what he considers to be the rate level existing upon our Durham and Winston-Salem districts. Had he been able to deduct the divisions we are forced to allow connecting lines, a very different result would have been obtained.

I will contrast briefly the theories of rate making practiced in the Southern and Official Classification territories respectively.

Railroad freight rates are of two general groups. One group is what are ordinarily called class rates, the other commodity rates.

All articles ordinarily transported by railroad in freight service are grouped together in a number of classes, this grouping process being commonly known as the classification of different articles, and the class to which the article is assigned is referred to as its rating or classifi-

cation rating. There are three major territories in the United States having different freight classifications. One is known as Official Classification territory, which embraces roughly the territory on and north of the line of the N. & W. from Norfolk to Bristol and on and north of the Ohio River. Another is the Southern Classification territory which lies immediately south of the Official and east of the Mississippi River. In those territories the rates generally are governed, respectively, by the official and Southern classifications. After the articles of traffic have been grouped into classes, then rates are published on those classes or groups of articles, between all points in the respective territories. Those rates are applicable upon all articles assigned to each class, are designated as class rates, and may be considered the basic freight rate structure in the territory.

At times, however, these class rates do not for one reason or another serve as a practical matter for the movement of a particular article of commerce which has been so classified. In such instances special rates on that particular article are provided, those special rates usually being lower than the class rates, and they are known as commodity rates, that is, rates on a particular commodity different from those provided for that commodity in the class rates. And where such special rates are published, they take precedence over the class rates provided for that commodity between any two points.

The theories or systems of rate making in the two major classification territories in the eastern part of the country, are entirely different. In the Southern territory a system of rate making has been followed which produces comparatively high class rates. But very little carload freight, and not all of the less than carload traffic, moves on those high class rates. In the Southern territory, the great bulk of the carload freight, and a

large part of the less than carload traffic, moves on comparatively low commodity rates which have been provided in great numbers by the Southern carriers for substantially all articles that move in large volume. This is particularly true of articles produced in the South and marketed in Official territory, for which commodity rates have been provided in almost every instance. And many of those commodity rates are on a low level, as low as or lower than the level of the class or commodity rates applicable on the same article in Official territory.

In contrast, an opposite system of rate making has been followed in Official Territory. There a low level of class rates has been provided in comparison with that in the South. But, unlike the South, those class rates are actually used for movement of a large volume of freight. Lower commodity rates are not provided in such frequent instances as in the South. All less than carload traffic, and a large part of the carload traffic, moves on the class rates generally in Official territory. Many important commodities move in large volume on the class rates in Official territory while commodity rates have been provided for such articles in the South.

The Interstate Commerce Commission has itself upon several occasions commented upon these differences in the systems of rates maintained in the respective territories. In its decision in the Eastern Class Rate Investigation, 164 I. C. C. 314, at page 391, it said:

> "Class rates in official territory differ materially from those in other sections of the country. They are much lower in level, with the exception of certain rates in western trunk-line territory which approach them in level. They also apply, generally speaking, to a much wider range of traffic. In other territories class rates, at least in the past, appear to have been of particular interest to jobbers, and

the traffic which they move seems to have been, and perhaps still is, predominantly less than carload. For carload traffic of any important volume commodity rates have generally been provided. This is not the situation in official territory, where a great deal of very important carload traffic moves on class rates. On the traffic embraced by the revenue test about 68 per cent was carload. Among the commodities which generally move in carloads on class rates in official territory but are given commodity rates in other territories are fruits and vegetables (including apples, cabbage, and potatoes), dairy products, vegetable oils, furniture, wrapping paper, soap, sash, doors, and blinds.

"A corollary of this situation is that, as compared with the class rates, the commodity rates on heavy, low-grade articles in official territory are often relatively high and in other territories relatively low. While it is difficult to determine the fact with exactness, it is quite clear from general knowledge, and also from evidence here of record, that the spread between the class rates in official territory and those in effect in the South and West is not an accurate index of the differences in general average rate levels; the latter differences being relatively considerably less."

Because of these important differences in the systems of rate making in the respective territories, a comparison of the class rates in the two territories does not show the relative rate levels in those territories. In order to arrive at a conclusion as to the relative rate levels, it is necessary to consider the commodity rates as well as the class rates.

Moreover, the classification ratings in the two territories vary widely. A particular article may be assigned

to first class in one territory, and to second, third or fourth in the other. The relation of the classes differ in the two territories, sixth class in one being 40 per cent of first class and 27½ per cent in the other. And those facts add further difficulties toward reaching a conclusion as to the relative rate levels in the two territories.

Q. Applying your last answer to Roberts' testimony, pages 43-49½ inclusive, involving Classification differences, what is the result?

A. The different levels of Classification ratings in the different rate systems are such that no definite conclusion can be drawn as to the effect of such ratings on the rate level as a whole, and hence the discussion on those pages leads nowhere. I definitely disagree, however, with Mr. Roberts' statement, pages 48-9, that: "Classes inferior to third class move the preponderance of class tonnage * *. As class rated traffic is concerned, there is, so far as revenue yield is concerned, a superiority in the ratings under Southern Classification, because the classes inferior to third class cover the bulk of the tonnage moving under class rates." This statement might be true if it had been applied to Official Classification territory. It is incorrect as applied to Southern Classification territory. In Southern territory commodity rates moves the bulk of the business that is embraced in class rates lower than third class. In short, in Southern territory we have both commodity rates and class rates covering the articles embraced in the classes below third class, and in the great majority of instances the commodity rate therefor is used. In Southern Class Rate Investigation, 100 I. C. C. 513, at page 533, the Commission estimated that the revenue of the Southern carriers as a whole, from all class rate traffic moving within Southern territory or between that territory and Official territory, would

amount to about 16.5 per cent of their total revenue from all traffic.

Q. On pages 50-57 of his testimony, Witness Roberts deals with the Railway's gross revenue from coal traffic over the Durham and Winston-Salem districts, the level of coal rates to main line points and the level to points on the Winston-Salem and Durham districts, and submits to support his testimony his Exhibits R-7 and R-8,—his conclusions being that on account of what he alleges to be the higher rate level on the Durham and Winston districts, the gross revenue from coal traffic thereover is relatively larger than the yield from such traffic on the main line, the branch line excess on page 57 being estimated by him to range between 115% and 120% of what the straight mileage prorate of such yield would give. What are the true facts respecting the Railway's gross revenue from the transportation of coal over the Durham and Winston districts, and what comment have you upon said testimony?

A. Even if we admit Mr. Roberts' contention that there is a higher level of rates for coal traffic on the Winston and Durham districts than on the main line, our revenue therefrom is actually considerably less than from the rates in effect on the main line. To support this statement, I offer as my Exhibit No. 2 a single sheet statement showing for the year 1929 the coal tonnages, N. & W. Railway's revenue and revenue per ton on all coal from N. & W. Railway mines transported over the Durham and Winston-Salem divisions. I invite attention to the fact that out of the total of nearly 800,000 tons transported over the Winston-Salem Division, only 102,000 tons or slightly more than 13% was delivered at stations on that division. The balance or nearly 87% was delivered to connecting lines destined for points beyond N. & W. Railway, and of course connecting lines

of the N. & W. Railway were allowed their division or proportion of the total revenue for the joint transportation service. The influence of these divisions upon N. & W. Railway's total revenue is graphically shown on the average revenue per ton of $1.586 which it derived from this entire movement of nearly 800,000 tons.

A similar picture is shown as to the movement over the Durham division. Out of the total of 287,084 tons transported only 43,566 tons, or about 16%, was delivered at stations on the Durham Division. The balance or approximately 84% was delivered to connecting lines at Durham. N. & W. Railway's total revenue on this traffic via the Durham Division averages $1.808 per ton.

On the grand total of over 1,000,000 tons transported over these two districts during the year 1929, the Railway received average revenue of only $1.64½ per ton. This average revenue per ton of $1.64½ is for contrast with the main line rates, shown by Roberts' Exhibit R-7 to have been in effect during the years 1927-1929 from the Pocahontas rate group, to the Roanoke group of $2.27 per ton, to the Lynchburg group $2.39 and to the Norfolk group $2.65, which Mr. Roberts cites to prove that the revenue from coal touching North Carolina is greater than from coal moving over the N. & W. main line. From the main line coal the Railway keeps all of the revenue—having no divisions to make with connecting carriers. As to main line coal transported to Tidewater for trans-shipment, the base rate from the Pocahontas group was $2.25 per ton.

It will thus be seen that the Railway's average revenue from the coal transported over the Durham and Winston divisions is far below the level of the revenue received by it for transporting coal from the same mines to main line stations. My Exhibit 2 shows that Roberts' testimony, pages 50-57, and his Exhibits R-7 and R-8 pre-

sent theory rather than fact, and I assume that no further comment thereon is necessary.

Q. From pages 58 to 70, inclusive, Witness Roberts presents testimony and two exhibits (R-9 and R-10), the purport of which is to show that class rates on our Durham and Winston Districts are on a higher level than on the balance of the system, and that the revenues derived from the class rate haul over these districts is greater than that from the class rate main line haul, whereby a mileage prorate of these revenues does not give the State all the revenue to which it is entitled. What is your comment on this testimony and these exhibits?

A. I will deal first with pages 60, 60a, 60b and top page 61, including Exhibit R-9. The very data upon which all this testimony and Exhibit R-9 are based was criticized as unreliable by the Interstate Commerce Commission in a case before it (I. & S. Docket 3000), reported in 157 ICC 514, and 163 ICC 167, and the following is quoted from the Commission's report in 157 ICC, at page 519:

> "The data was taken from an analysis of carload traffic which moved at class rates or percentages of class rates October 26 and 27, 1926, destined to points in Official territory * * *. In view of the doubt cast upon the reliability of the * * * data, we can give but little weight to that evidence."

Yet with this history Witness Roberts offers the same data in the present case. Furthermore, this same unreliable data has less pertinency in the present case than it had in 157 ICC 514. In the present case we are considering the comparative level of rates on the Durham and Winston Districts as contrasted with those on the main line and our lines North thereof. Exhibit R-9 compares class rates between CFA territory and the entire

Eastern section of the United States north of the Railway with parts of class rates on the Durham and Winston Districts. Hence, the exhibit is not only unreliable but irrelevant.

A portion of Exhibit R-9 is also used on Sheet 1 of Exhibit R-10. To that extent the remarks heretofore made respecting Exhibit R-9 apply to Exhibit R-10.

In Exhibit R-10 and the testimony relating to it on pages 61-70, Witness Roberts attempts to show that the revenue from the branch line proportion of class rates from six important points in CFA territory (Detroit, Chicago, Peoria, Burlington, Ia., Cleveland and Indianapolis) to six points, three on the Durham Division and three on the Winston-Salem Division, is relatively in excess of the main line proportion of the haul and in excess of what is attributable to the branch lines on a mileage prorate basis, and to that end what he does on Exhibit 10 is briefly this:

He first determines the average revenue per mile from CFA origin to branch destination by dividing the through rate to branch destination by the number of miles. He then ascertains the branch's mileage proportion of the total rate or revenue by multiplying this revenue per mile by the number of miles traveled on the branch. Then he ascertains the difference between the rates to branch line junction points (Roanoke or Lynchburg) and the branch destination point, by subtracting the rate to Roanoke or Lynchburg from branch destination rate. This difference he considers the branch's compensation or rate for its part of the haul. Then he divides this difference by the branch's mileage proportion of the total rate, and the result expressed in terms of percentage purports to show to what extent the rate on the branch exceeds what the branch gets on a mileage prorate basis of the through rate to branch destination.

Without accepting as proper the principle of the comparison shown on this exhibit, I point out, first, that Witness Roberts has here selected for the comparison only the rates most favorable to his theory, i.e., eastbound rates from CFA territory to Roanoke and Lynchburg as a basis; and second, that a different result would have been obtained by comparison of the southbound rates from Trunk Line and New England territories to the same six points on the Winston and Durham Divisions. To show this and for contrast with Roberts' Exhibit R.10, I have therefore prepared and herewith offer my Exhibit 3, on which I have compared the class rates from five important points (Harrisburg, Pa., Boston, Mass., New York, N. Y., Philadelphia, Pa. and Baltimore, Md.) in Trunk Line and New England territories to Roanoke and Lynchburg, respectively, with the class rates from said five points to the same six points on our Winston and Durham Districts that Witness Roberts employed in his Exhibit R-10. On my exhibit I have not attempted the detail used by Witness Roberts in his Exhibit R-10, for the reason that I do not agree that his formula shows the results he seeks to show. On my exhibit I have shown the distances, the rates to the branch line junction points, the rates to the points beyond and the differences, class for class, between the rates to the branch line junction points and the branch line destinations. I select therefrom at random the following comparisons:

(1) The first class rate from Harrisburg to Winston-Salem is lower per mile than from Harrisburg to Roanoke. Upon a mileage prorate this rate should be 36.3c higher at Winston than at Roanoke, and yet it is only 25c higher. Hence, the first class rate from Harrisburg to Winston is relatively lower than the same rate from Harrisburg to Roanoke. Likewise, the sixth class rate

from Harrisburg to Roanoke is relatively higher than the sixth class rate from Harrisburg to Winston-Salem.

(2) The first, second and third class rates from Boston (which is 844 miles from Winston-Salem as contrasted with Chicago's 824 miles therefrom) to Winston-Salem are precisely the same as these same rates to Roanoke, i.e., the first, second and third class rates from Boston to Winston-Salem are relatively lower than the rates from Boston to Roanoke. Likewise, the fifth class rate from Boston to Winston-Salem is relatively lower than the fifth class rate from Boston to Roanoke.

(3) The first and second class rates from New York to Winston-Salem are relatively lower than the first and second class rates from New York to Roanoke. Likewise the fifth class rate from New York to Winston-Salem is relatively lower than such rate from New York to Roanoke.

Illustrative instances of this character can be multiplied indefinitely. Further comparison employing Philadelphia and Baltimore would be only repetition. It will be noted that in the comparisons on my Exhibit 3 between the Lynchburg rates and the Durham District rates, the differences at Roxboro and Durham, for example, are all less than the differences shown by Witness Roberts' Exhibit R-10.

Neither my Exhibit 3 nor Roberts' Exhibit R-10 can be accepted as truly depicting the relationship of the entire class rate adjustment to and from our Durham and Winston-Salem District stations—primarily because both of these exhibits reveal only parts of the entire rate picture. Neither my Exhibit 3 nor Mr. Roberts' Exhibit R-10 can be accepted as showing the actual rate that is applicable on a given commodity to Roanoke, for example, as compared with Winston-Salem, because of the differences in the classification ratings assigned to a par-

ticular commodity in the respective classifications which govern those rates. All of the articles rated first class in Official Classification, for example, which applies to Roanoke, are not rated first class in Southern Classification, which applies to Winston-Salem. Some may be rated second, third or fourth class in Southern Classification. And some may move on commodity rates to the South, including Winston-Salem or Durham.

To illustrate the point here involved: We made in another case a traffic test which indicated there was substantial movement of such commodities as iron and steel articles, plumbers' goods, nails and wire, iron and steel pipe and fittings, iron and steel roofing, etc., to points on our railroad. These articles when in less carload quantities are rated fourth class in Official Classification and sixth class in Southern Classification. On a movement of these commodities from the five eastern points shown on my Exhibit 3 to Winston-Salem the difference of two classes in the classification ratings produces lower rates to Winston-Salem than to Roanoke. Innumerable instances of similar character can be cited. In fact, this situation has necessitated the observance of the Official Classification border rate as the minimum rate to Southern Classification territory in connection with the revised class rates prescribed by the I. C. C. in Southern Class Rate Investigation, 100 I. C. C. 513. In extreme cases where there is a wide variation in the classification ratings in the two classifications the observance of the Official Classification border rate as minimum has blanketed the rate from the border line as far south in some instances as Atlanta, Ga. and Jacksonville, Fla. And in such instances the rates to the Southern points, because of the longer distances to those points, are relatively lower than the rates to the border points.

What I have said with respect to the difference in rates due to a spread of two classes in the classification ratings applies also, in lesser degree, to cases where there is a difference of but one class in such ratings. Of course, where the Southern Classification rating is one class lower than the Official Classification rating (and there are many such instances) that difference in classification rating will materially reduce the spread, class for class, as shown both on Mr. Roberts' Exhibit R-10 and on my Exhibit 3.

The illustrations shown on my Exhibit 3 are typical of the class rate situation from the entire Trunk Line and New England territories. The five origin points thereon are representative and the comparisons have been confined to a reasonable number of illustrations. Many more instances showing similar results could be exhibited.

My exhibit is intended primarily to show how different results can be obtained by using rates different from those employed by Roberts and to illustrate the utter confusion that attends any effort to generalize that class rates actually employed in moving traffic on the Durham and Winston Districts are higher than those on the balance of the system. If some class rates on these districts are higher and some are lower than on the balance of the system, then, in order to determine whether the revenue actually received from class rate traffic moving over those branches is relatively higher or lower than the revenue from such traffic on the balance of the system, it becomes necessary to examine every individual shipment to ascertain precisely upon what rate it traveled. This neither Mr. Roberts nor I have done.

Q. In your last answer you mentioned the fact that Roberts in his Exhibit R-10 had employed only rates to points on our Durham and Winston Districts. You have already shown that the great preponderance of coal and coke movement over these districts is to points beyond.

Does the preponderance of our merchandise traffic other than coal and coke over these districts go to points beyond same, and if so, what is the result with respect to Roberts' Exhibit R-10?

A. The preponderance of traffic, other than coal and coke, handled over our Durham and Winston-Salem Divisions is destined to points beyond our rails. I offer as my Exhibit No. 4 a statement of one page showing for the years 1931 and 1932 the movement of loaded cars other than coal and coke into and out of Winston-Salem and Durham compared with cars received from and delivered to our connections at those points. It will be observed that over two-thirds of the business, other than coal and coke, handled over these divisions is either received from or delivered to connections. Further, it will also be observed that other than coal and coke the northbound movement, both of traffic originating at Durham and Winston-Salem and received from connections at those points, is in excess of the southbound movement. As applied to Exhibit R-10, the effect of the preponderance of the traffic going to points beyond our Durham and Winston Districts is this: That if Roberts had, with the same CFA origins used on Exhibit R-10, employed rates to points beyond our Durham and Winston Districts instead of points on these districts, he would have obtained still another different and also less favorable result than that reflected by R-10. To show this situation I offer my Exhibit 5, on which I have made a tabulation similar to that of Witness Roberts on his Exhibit R-10, but employing the first six classes from Chicago, Ill., to Wadesboro, N. C., the Southern terminus of the Winston-Salem Southbound Railway—one of our Winston connections. By applying Roberts' Exhibit R-10 formula to this exhibit, it will be observed that the resultant ratio is very much lower than Roberts produces on R-10. This

merely emphasizes my previous comment on the manner in which Roberts has selected his data. Furthermore, a mere comparison of levels of rates does not tell the whole story. As I have previously stated in discussing rates on coal, we have to divide with our connecting lines whatever revenue accrues from the joint rates covering hauls over two or more railroads, and this would still further reduce the ratio shown on my Exhibit 5. It would require an extensive exhibit to show this divisional situation. The effect, however, on our revenue from traffic other than coal and coke is comparable with the effect on our revenue from coal and coke shown on my Exhibit 2.

Q. Have you any other comment to make as to Witness Roberts' Exhibit R-10?

A. In connection with the summary of Exhibit R-10, it will be noted that the objectionable traffic test used in I. C. C. I. & S. Docket No. 3,000, heretofore referred to in my Answer 10, is used to weigh the different classes. The unsuitability of this discredited test is at once apparent.

In the first section of the summary on Exhibit R-10 a traffic test by the Southern carriers in connection with Docket 13494 (Southern Class Rate Investigation, 100 ICC 513) is used to weigh the class rates. That test covered the whole movement from, to and between Southern territory and is not necessarily representative of the composition or complexion of class rate traffic to N&W Ry., Durham and Winston-Salem Division points or to points beyond via those gateways.

In passing, it may be pointed out that the witness' own analysis of the Cincinnati to Durham-Winston-Salem "class rate structure" discredits his entire theory that the level of rates on the Carolina branch lines is about 252% of the level on the main line. To offset this unfavorable showing, the witness, on pages 67-69, attempts to segre-

gate line haul compensation from terminal compensation, overlooking the fact that the major portion of the business moving from CFA territory to Winston-Salem and Durham is "overhead" business not only as to the southern termini of the N&W but probably also as to the western gateways. Certainly that is true as to the six CFA origins used in Exhibit R-9.

Q. Do the exhibits introduced by either you or Mr. Roberts show a complete picture of the class rate structure to, from and between points on N&W Ry's Durham and Winston-Salem Divisions?

A. They do not—partly for reasons already suggested, and partly because, among other reasons, they deal only with inter-territorial "class" rates applying between Official Classification territory, on the one hand, and our Durham and Winston-Salem Divisions on the other. There are two additional class rate adjustments related to each other, it is true, which should also be considered in this connection. They are the interstate adjustment of "class" rates in Southern Classification territory and the North Carolina intrastate class rates.

When the southern carriers complied, effective January 15, 1928, with the ICC's order in Southern Class Rate Investigation, 100 ICC 513, Docket No. 13494, and supplemental reports, they not only applied the southern intra-territorial adjustment, known as the K-2 scale, between all points in Southern Classification territory, but in two important instances extended the application of this K-2 scale to class rate traffic between points in Official territory on the one hand, and points in Southern territory on the other. By referring to my map exhibit it will be seen that our line crosses the Ohio River at Kenova, W. Va. It parallels that river for 39 miles to Portsmouth, O. Incidentally, in this territory the Ohio River is the dividing line between Official Classification

territory and Southern Classification territory. While the N&W Ry. between Kenova and Portsmouth runs along the north bank of the Ohio River, the C&O Railway runs along the south bank from Kenova to Cincinnati, O. There is an industrial district, commonly known as the Southern Ohio district, extending along both banks of the Ohio River from Kenova to Portsmouth, and including such points as Ironton, O., Portsmouth, O., and Ashland, Ky. The Elkhorn City line of the C&O Ry., which diverges from its main line near Catlettsburg, Ky., forms one of the short line routes into Southern territory. Because of this industrial situation and the existence of short line routes via C&O Ry's Elkhorn City line, the ICC prescribed in ICC Docket 13494, between the Southern Ohio district and points in Southern territory the Southern intraterritorial basis to be applied to the distances from Kenova, W. Va. The N&W Ry. has long participated in the handling of business from its Ohio line to the Carolinas via its route through Virginia cities. When the Southern intraterritorial basis was applied between the Southern Ohio group and the South, naturally the established route of the N&W Ry. was kept open at equal rates, and, for fourth section reasons, the same intraterritorial scale was applied between N&W Ry's stations from Kenova, W. Va., to Walton, Va., on the one hand and points in the South on the other hand, even though this local territory of the N&W Ry. north of Walton, Va., is, strictly speaking, in Official Classification territory.

Again referring to my map exhibit, it will be noted that N&W's Shenandoah Division (Roanoke to Hagerstown, Md.), roughly parallels Southern Ry's line from Lynchburg to Washington. The Southern desiring to maintain as far as possible an equal system of rates over its entire railroad, applied this southern intraterritorial

basis of class rates, known as the K-2 scale, between points on its line north of Lynchburg, to and including Washington, D. C., on the one hand, and Southern territory on the other hand. Because of this competitive situation, the N&W likewise applied the southern intraterritorial basis between its Shenandoah Division stations on the one hand, and Southern Classification territory on the other hand. These lines of the N&W and Southern north of our main line are in Official Classification territory. It will thus be seen that, generally speaking, the southern intraterritorial basis of "class rates" applies from the entire State of Virginia to the entire State of North Carolina on interstate traffic. Moreover, this same basis of class rates applies from points in Virginia and from points in North Carolina to the entire South. Under these circumstances there is, of course, no difference in rate levels as between N&W Ry. stations in Virginia or, for that matter, in West Virginia or Maryland, on the one hand, and stations in North Carolina, on the other hand. Of course this situation has existed only since the effective date, January 15, 1928, of the revised rates under Southern Class Rate Investigation, Docket 13494.

Although this southern intraterritorial basis of class rates was made effective January 15, 1928, from points in Virginia and from adjacent territory, as above described, to points in North Carolina, the North Carolina intrastate class rates were not revised until the North Carolina Corporation Commission was forced to do so by the decision of the Interstate Commerce Commission in ICC Docket No. 16321, State Corporation Commission of Virginia v. A&R RR. Co., 161 ICC 273, decided February 11, 1930. Between January 15, 1928, and the effective date of the revision made by this decision, the North Carolina intrastate rates were lower than the interstate

rates from points in Virginia to points in North Carolina, a fact reflected by the report of the case in 161 ICC 273. The Virginia points involved in this proceeding included not only stations on our Durham and Winston branches, but other points in Virginia from which the K-2 scale had applied since January 15, 1928, on interstate business to the entire Southern territory.

Q. On pages 71-76, inclusive, Witness Roberts discusses "station group" commodity rates from the Durham and Winston branches to main line points. What are your comments on this testimony and the supporting Exhibit R-11?

A. The purport of this testimony is that on account of higher branch operating costs, these "station group" commodity rates are higher for the portion of the haul on the Durham and Winston branches than elsewhere on the system, and are actually made with the intention of producing relatively more revenue for this branch haul than for the portion of the haul beyond these branches. The illustrative data in Exhibit R-11 is an 18c commodity rate applying on mixed carloads of lime, cement and wall plaster from Durham to Norfolk. This exhibit and testimony present theory rather than fact, because:

First: I happen to know personally that the makers of this 18c rate had no such intention as that deduced by the witness from his dissection of it. The facts are that both the Southern and Seaboard Air Line Railways have direct routes from Durham to Norfolk upon which they first made this precise 18c rate, and we subsequently met it via our circuitous route through Lynchburg. On account of the long and short haul clause of the Fourth Section of the Interstate Commerce Act, we could not make the rates from our intermediate stations to Norfolk higher than our Durham-Norfolk rate, and this alone accounts for the extensive blanketing of the destinations from

Gladys on the Durham District to Norfolk. There was absolutely no other reason for the establishment of this group basis.

Second: There is no production of either lime, cement or wall plaster either at Durham or Winston-Salem or anywhere on the Durham or Winston-Salem Districts. There is production on our lines of cement at Norfolk and Hagerstown, Md., of lime at Riverton, Ripplemead and Tazewell, Va., and of plaster at Saltville and Plasterco, Va., these latter two places located on a spur of our Bristol line being the only plaster producing points in the South.

Such was my curiosity about this Exhibit R-11 that I find that the 18c rate on cement was cancelled by Supplement 5 to N. & W. Tariff I. C. C. 8056, effective May 7, 1928, and since early in 1928, the rates on cement from Norfolk and Hagerstown to our Durham and Winston-Salem Division stations both in North Carolina and in Virginia as well as to our main line and Shenandoah Division Stations have been on a uniform scale as result of the decision of the Interstate Commerce Commission in I. C. C. Docket 15806, 132 ICC 427, which scale was also applied to North Carolina intrastate business effective May 2, 1928, in N&W Railway tariff ICC No. 7369 and to Virginia intrastate traffic under an order of the State Corporation Commission of Virginia. So that since the early days of May, 1928, both interstate and intrastate cement rates applying to North Carolina and Virginia have all been on one uniform level. Hence as to cement rate levels Exhibit R-11 is entirely incorrect.

With respect to lime, in the fall of 1927 there was a general revision of rates thereon from, to and between points in southern territory responsive to the decision of the Interstate Commerce Commission in I&S Docket 2874, 129 ICC 635. The rates from our Virginia pro-

ducing points above enumerated to points in North Carolina and to all other points in the South were revised effective September 26, 1927, and as to our stations in North Carolina were published in Supplement 52 to N&W Railway ICC 8056. This Southern lime scale also became applicable on North Carolina intrastate traffic on May 1, 1928, in Supplement 23 to N&W Railway ICC 7369. So that so far as actual movement of lime is concerned there was no difference in rates.

The plaster rates from Saltville and Plasterco are to Roanoke 14 cents, to Lynchburg 15½ cents, and to both Durham and Winston-Salem 20 cents. Hence these plaster rates to Winston and Durham are actually relatively lower than those to the main line junction points, Roanoke and Lynchburg.

From the foregoing I think it sufficiently appears that Roberts' data and Exhibit R-11 do not support his testimony.

Q. On pages 77 to 79, inclusive, Witness Roberts discusses "specific" commodity rates. What is your comment on this discussion?

A. Although Witness Roberts on page 79 dismisses the subject of local commodity rates on the Norfolk & Western Railway as being unimportant because the bulk of merchandise traffic touching North Carolina probably moves as interline business, nevertheless the question of relative levels of N&W Railway's local commodity rates to, from and between points on the Durham and Winston-Salem Divisions as contrasted with other portions of the railroad is of some interest in this case.

During the course of some seven or eight years there were a number of general advances and one general reduction of freight rates. Some of these general advances were applied to rates in Official Classification territory and not to rates in Southern Classification territory. An-

other advance authorized by the decision of the Interstate Commerce Commission in Ex Parte 74, 58 ICC 220, made a distinction between the measure of the advance permitted in different territories designed, as I understand it, to meet the revenue needs of the carriers in these separate groups. In Official Classification territory generally an advance of 40% was authorized. On interterritorial business from and to Southern points an advance of 33 1/3% was permitted and on intraterritorial business between points in Southern Classification territory an advance of only 25% was permitted.

Before any of these advances were made, we had some commodity rates that were either the same or substantially the same all over our railroad south of the Ohio River. On my Exhibit No. 6, which I now offer, I have extracted a few of these scales and have made a comparison of the actual rates between stations on our Durham and Winston-Salem Districts on the one hand and our main line stations on the border on the other hand (these being the 25 per cent scales) with scales applicable on the same commodity between our main line stations (those being the 40 per cent scales). I invite particular attention to the comparison of scales applicable on crushed stone and lumber. There is a substantial movement of crushed stone all over our railroad south of the Ohio River. I personally know of movements from Blue Ridge, Va., on our main line 12 miles east of Roanoke, to points on our Durham and Winston-Salem Divisions. The exhibit shows that for a haul of 50 miles from Blue Ridge to a station on our Winston-Salem Division, for example, the rate would be 90 cents as contrasted with rate of $1.20 for 50-mile haul on the main line.

There is also a movement of lumber from points on our Durham District to points on our main line in Virginia. The exhibit shows for haul of 50 miles from our

Durham District to our main line the rate would be 10½ cents, while for a 50-mile haul on our main line the rate would be 11½ cents.

This complication brought about by different levels of commodity scales has caused us an untold amount of trouble. To prevent violations of the Interstate Commerce Commission's Fourth Section and of the Virginia long and short haul clause, some time ago we fixed our local commodity tariff so that the rate from a point on our Durham Division to a point on our main line would not be lower than the Lynchburg rate and so that the rate from point on our Winston-Salem District to our main line would not be lower than the Roanoke rate. It will be realized that this minimum rate restriction has had the effect of applying the Roanoke and Lynchburg rates as minima even though the distance from Roanoke and Lynchburg to the main line destinations is, of course, less than the distance from our Durham and Winston-Salem District points to the same main line stations.

This exhibit and the testimony relating to it has general application to our commodity rates between the Durham and Winston-Salem Districts and our main line stations on the one hand and between our main line stations on the other hand.

There was also a difference in the class rate situation which I shall explain in connection with another exhibit.

It will be noted that my Exhibit 6 shows the comparison of relative rate levels as developed from consideration of mileage commodity scales. This comparison of mileage commodity scales is the most comprehensive way to show these relative rate levels, because the mileage commodity scales have general application in the territories in which they apply. The same showing could easily be made as to any specific commodity rates which apply between points on the main line and points on our

Durham and Winston-Salem Divisions as contrasted with commodity rates on the same article applying between points on our Durham and Winston-Salem Divisions. The difficulty about making this specific comparison is due to the absence of the same specific commodity rates applying both from the main line to the Durham and Winston-Salem Divisions and locally on those divisions.

I agree with Mr. Roberts in his discussion on pages 77-79, inclusive, that there are some instances in which specific rates between branch and main line points are higher than the rates between main line points for the same distances, and that in other instances the reverse is true; but the instances selected by Mr. Roberts are isolated ones and the true situation is that shown on my Exhibit 6, which reflects typical rates.

Q. What is your comment on Roberts' testimony, pages 80 to 84, inclusive, captioned "Through Class and Commodity Rates," and his Exhibit R-12 thereon?

A. Exhibit R-12 is substantially similar to Exhibt R-10 except that it deals with both commodity and class rates. My comments are:

First: As with Exhibit R-10 it deals only with rates between the same five CFA origins employed on Exhibit R-10 and destinations on our Railway, whereas, as previously shown, the great preponderance of the traffic over our Durham and Winston Districts moves to points beyond these districts, and on this traffic, whether commodity or class rate, we have to allow the substantial concessions previously mentioned to our connecting lines, whereby, contrary to the point sought to be proven by the exhibit, the branch line portion of the revenue is relatively less than the main line portion. Hence the exhibit shows only a small part of the picture.

Second, the Exhibit does not deal with rates between the Eastern Trunk Line territory and points on these

branches, but only with the rates in the east and west adjustment which are unusually low to and from our main line stations.

Finally, it will be noted that the ratio on this exhibit between branch and main line levels is very much lower than that shown by the witness on Exhibit R-10. I do not agree that either of these exhibits shows a true comparison of branch line with main line levels.

Q. On Witness Roberts' Exhibit R-13 and R-14 and in the testimony relating to them, pages 85 to 88, inclusive, he has attempted to show that the N&W's gross revenue per net ton mile as reported to the North Carolina State Corporation Commission is inordinately low by comparison with the same figures reported by four Class I roads serving North Carolina and by four Class II serving North Carolina—his idea therefrom being that the Railway's comparatively low ton mile earnings tend to confirm his theory as to the insufficiency of the gross revenue apportioned to the State by the statutory formula. Please state the result of your study of these exhibits.

A. A study of these exhibits convinces me that N&W's gross revenue per net ton mile is in proper relation to the same figure for the other four roads serving North Carolina and that the witness' deductions from our low figures in this respect are erroneous. The explanation is the fact that the N&W carries a larger percentage of heavy loading low paying freight, such as coal, than do the other Class I roads in the State (coal alone constituting roughly 50% of our North Carolina business), and that our car loadings are much heavier than those of other roads. The system average carload on the N&W during 1928 was 53½ tons; during 1929 it was 54 tons. The same figure for the Norfolk Southern in 1928 was 26.6 tons and for 1929 26.8 tons; for the Atlantic Coast Line for 1928 26.7 tons and for 1929 26.2 tons; for the

Seaboard Air Line for 1928 29.1 tons and for 1929 28.1 tons; Southern Railway for 1928 30.2 tons and for 1929 29.6 tons. Figures showing the average loading of Class II roads are not available, but undoubtedly they would reflect the same loading conditions as the Class I roads. With the exception of the Winston-Salem Southbound, the Class II roads shown on Exhibit R-13 have all received special rate treatment—that is to say, the Interstate Commerce Commission has authorized them to maintain rates higher than the standard applicable on Class I roads in the same territory (100 ICC 513). In addition, because of their light traffic and other adverse conditions, they have forced their Trunk Line connections to give them special treatment in the division of joint rates. Notwithstanding the high gross earnings per net ton mile, some of these roads are actually operating at a deficit. In fact, all four of the Class I roads shown on R-13 to have earnings per net ton mile far in excess of the N&W have in late years been operating at a loss—two of them, the Seaboard and the Norfolk Southern, being in the hands of receivers.

Also in connection with Exhibits R-13 and R-14, I refer to my earlier exhibit showing revenue returned to the N&W Railway from the coal traffic handled by it over Durham and Winston-Salem Districts for the year 1929. There is a close relation between the low-paying heavy-loading coal traffic and our revenue per net ton mile shown on Exhibits R-13 and R-14. I feel that if these exhibits prove anything at all, they prove that our revenue on the traffic handled over our Durham and Winston-Salem Divisions is indeed very low.

Q. In Witness Roberts' Exhibit R-15 and in the testimony relating to it on pages 89 through 91, he has attempted to show that the local rates applicable on the North Carolina parts of the Durham and Winston Dis-

tricts are higher than those on the Virginia part thereof. What has been the result of your study of this testimony and Exhibit R-15?

A. In the first place, the rates shown on Exhibit R-15 as being applicable between Durham and Winston-Salem District stations in Virginia actually apply only on interstate business. Likewise the rates shown as being applicable between Durham and Winston-Salem District stations in North Carolina apply only on interstate business. This means that these rates are nothing more or less than proportional rates dependent for their application upon being connected with some other rates applying from or to points without the States of Virginia or North Carolina. In other words, they are simply pieces of rates which standing alone mean nothing. They are not the rates covering interstate shipments between Virginia and North Carolina points respectively on these branches. For example, they do not apply from Winston-Salem to Martinsville.

In addition, the class rates shown in the second section of the Exhibit were canceled effective January 15, 1928, by Supplement 58 to N&W Railway's Tariff ICC 8056.

The proper way to show the respective rate levels prevailing on the Virginia and North Carolina portions, respectively, of the Durham and Winston-Salem Divisions is to compare the local Virginia and North Carolina intrastate rates thereon. I submit my Exhibit No. 7, whereon I have made a comparison of the intrastate commodity scales applicable on the Durham and Winston-Salem districts on all of the commodities covered by Exhibit R-15, except that for brevity I have used the rates on cattle single deck as being representative of the live stock rates, and I have omitted the less than carload rates on lime and plaster because there is no less than carload move-

ment of these commodities locally on the Durham and Winston-Salem districts. Those scales run for fifty-five miles, which amply covers intrastate distance ranges on those districts. At the bottom of each column I have averaged the scale rates for all of the distances and I invite attention to the showing that in practically every case the North Carolina rates are lower than the Virginia rates. Where the North Carolina rates are higher the difference is insignificant, and it occurs only in connection with the rates on salt and on cattle. This exhibit illustrates a feature I mentioned earlier in my testimony, i.e., the effect upon our rate structure of low rates prescribed by the State Corporation Commission of North Carolina.

The second section of my Exhibit 7 shows a comparison of the North Carolina intrastate class rates with the Virginia intrastate class rates applicable locally on the Durham and Winston-Salem districts. It will be observed that in most cases the Virginia rates are slightly higher than the North Carolina rates. In some instances the reverse is true and in other instances they are the same, but by and large the Virginia rates are the higher.

In this connection earlier in my testimony with respect to class rates I referred to the decision of February 11, 1930, of the Interstate Commerce Commission in ICC Docket 15321 (161 ICC 273), which forced the State of North Carolina to apply the Southern intraterritorial scale of class rates locally on North Carolina intrastate traffic. The class rates shown on the Exhibit 7 were those in effect up to this time. I have thought that it would be helpful in this case to see the development of the North Carolina class rate structure as contrasted with the Virginia class rate structure between the time prior to the first general advance and the effective date of the class rate revision on the Southern scale. That in-

formation is shown on my Exhibit No. 8 which I now offer. In this Exhibit I have started with the North Carolina and Virginia intrastate class rates applicable on the Norfolk and Western Railway, whether on the main line or on the Durham and Winston-Salem districts, in effect August 25, 1920, or the day before the advances permitted by Interstate Commerce Commission's order in Ex Parte 74 took effect. It will be observed that the intrastate class rates in effect August 25, 1920, in Virginia were generally higher than the intrastate class rates in North Carolina.

On the next day, August 26, 1920, because of the different percentage advances permitted by the Interstate Commerce Commission, it was necessary to divide the Virginia intrastate rates. Those applicable between points in Virginia on our Durham and Winston-Salem districts were increased 25 per cent while those applicable between our stations in Virginia on other parts of the system were increased 40 per cent. Of course, the difference between the Virginia intrastate rates and the North Carolina intrastate rates on August 25, 1920, was continued and intensified by the different levels of advances applied to Virginia scales on that date.

On July 1, 1922, all of these rates were reduced 10 per cent and the result is shown in the third section of my exhibit. Here again the North Carolina intrastate rates are still lower than the Virginia intrastate rates, whether the latter apply locally on the Durham and Winston-Salem districts or on other parts of our railroad. As I have previously said, these North Carolina intrastate class rates remained in effect until the State of North Carolina was forced to raise them by an order of the Interstate Commerce Commission.

Q. In your answer to Question 7 you contrasted the respective theories and practices of the carriers in South-

ern and Official Classification territories in the construction of their rates. Explain the development of use of commodity rates, especially on the N&W and particularly as applied to traffic moving over the Durham and Winston-Salem districts.

A. The Southern carriers, including the Norfolk and Western Railway in so far as our Durham and Winston-Salem districts are concerned, cover by commodity rates any traffic which moves in appreciable volume. This is particularly true as to manufactured articles produced in Southern territory, which because of the small consumption in the south and the enoromus consumption in the north must be marketed at points in Official territory in competition with the like articles produced in Official Classification territory. The Official Classification carriers, which includes all of the Norfolk and Western except the Durham and Winston-Salem districts, have relatively few commodity rates and generally such of these as they have are designed to cover special movements usually of large volume. The result is that Southern territory commodity rates on the articles produced in the south and consumed in the north are made on approximately the level applicable in the north. So far as the Norfolk and Western Railway is a Southern carrier, it adopts and participates in this practice. To illustrate this result as applied to commodity rates on traffic over our Durham and Winston districts, I have prepared and herewith submit several exhibits as follows:

First, my introductory and general Exhibit No. 9, which is a single sheet statement containing extracts from the United States Bureau of Census Tabulation of Manufacturers in North Carolina for the year 1929. This Exhibit shows that the products of (1) tobacco factories, (2) cotton and knitting factories, (3) forest products, and (4) furniture, all of which move on commodity rates,

are the four most important productions in the State of North Carolina. These facts are well known. I have tabulated the figures on this exhibit to show the relative importance of the value of these commodities with the value of all manufactured commodities produced in the State of North Carolina. It will be observed that the value of these four commodity groups alone total over a billion dollars in value, while the grand total of all of the products of North Carolina factories is only one billion, three hundred million dollars. All four of these important commodities are produced at points on our Durham and Winston Districts and there is substantial movement of them over our lines.

There are tobacco factories on our line at Durham and Winston, at which points I estimate that the major portion of the volume of the largest item (tobacco) on my Exhibit 9 is produced. Tobacco products alone are more than a third of the grand total of all industries in the State. Hence I next offer my Exhibit 10, on which I compare the rates on cigarettes, smoking tobacco and plug or twist tobacco from Winston-Salem with those from Roanoke, and the rates from Durham with those from Lynchburg. There is actually no production of cigarettes and manufactured tobacco at Roanoke or Lynchburg, but in Official Classification territory these move at class rates, and if there were tobacco factories at Roanoke or Lynchburg, the normal rates would be the class rates applicable from those points. The rates from Roanoke and Lynchburg were used as the basis for the rates on cigarettes and manufactured tobacco from Durham and Winston-Salem to CFA territory. The basis was to make the rates from Durham and Winston-Salem 20 cents higher than the rates from the Virginia cities in recognition of the longer hauls. The result of these rates to CFA territory is shown on Exhibit 10 by the figures

to Cincinnati, St. Louis, Chicago, Indianapolis and Detroit (the last five points shown on the exhibit), from which it will be seen that the Winston-Salem rate to these points is relatively lower than the Roanoke rate, showing that the revenue from the branch haul of this most important commodity is not higher than the revenue from the main line haul thereof.

In consructing the rates from Durham and Winston to Trunk Line and New England territories, this uniform basis of making the rates from Durham and Winston 20 cents higher than the rates from the Virginia cities was not employed, but it will be noted that some of these rates from Durham and Winston are actually lower, notwithstanding the greater distance, than the class rates from the Virginia cities and that almost all of them are relatively lower. For example, these commodity rates on cigarettes from Winston-Salem as compared with the class rates from Roanoke to the first seven named points on my Exhibit 10 (in Trunk Line and New England territories) are in all instances relatively lower than the class rates from Roanoke, and in the first five instances are actually lower. The point I am making is that the branch line haul of cigarettes and tobacco products generally does not yield greater revenue relatively than the haul on the main line or north thereof, and that these commodity rates on tobacco do not reflect higher branch operating costs, because, if anything, they are relatively lower on the Durham and Winston-Salem branches than the rates north thereof.

My Exhibit 10 covers only less than carload traffic. An investigation made at Durham and Winston-Salem about 1930 indicated to us that approximately 95 per cent of the outbound cigarettes and manufactured tobacco moved upon less than carload rates, and the rates shown on my exhibit are truly representative of the level of

the rates applied to approximately 95 per cent of the traffic. The remaining 5 per cent was made up of a few scattering carloads to points at which the manufacturers had distributing warehouses. These points were located mainly in Central Freight Association territory and those carload rates were also made 20 cents higher than the rates from the Virginia cities.

The tobacco factories in Virginia are almost exclusively located at Richmond, which we do not reach with our own rails. Consequently for the purpose of this case I cannot make a comparison between the Durham and Winston-Salem rates on the one hand and the Richmond rates on the other hand.

The second most important group of products shown on my Exhibit No. 9 is cotton and knitting factory products. We have textile plants on our line at Winston-Salem, Martinsville, Durham and Roxboro, also at Roanoke and Lynchburg. On my Exhibit No. 11, which I now offer, I have compared the rates from Winston-Salem and Martinsville with the rates from Roanoke and the rates from Durham and Roxboro with the rates from Lynchburg. This Exhibit shows not only that there is very little difference between the rates from our Durham and Winston-Salem district factories and the rates from our Roanoke and Lynchburg factories, but that in some instances the rates from the intermediate Virginia points, Roanoke and Lynchburg for example, are actually higher than the rates from the branch line points and are generally relatively higher.

We had this situation brought forcibly to our attention some time ago when the producer of cotton knit underwear at Roanoke found out that his rate to Chicago was higher than the rate from his own mill near Martinsville. This maladjustment, which had escaped our attention, was immediately corrected.

The third most important item produced in North Carolina is forest products. We have a number of sawmills and planing mills all over our railroad, including the Durham and Winston-Salem districts, and hence substantial traffic in these products, especially to the north and east, but before introducing my Exhibit 12 covering forest products commodity rates, I desire to illustrate briefly the workings of one of the important influences affecting the rates on lumber from our Durham and Winston-Salem districts to Trunk Line and New England territories. I have selected this illustration because it shows so clearly how rates are made by the factors mentioned in my answer to Question 4 and how little operating costs on a particular part of a railroad have to do with the matter:

A number of years ago there was from Goldsboro, N. C., to New York, N. Y., an all-rail rate designed to meet the competition of the rail line from Goldsboro to New Bern, N. C., thence water carriers from New Bern. This all-rail rate was designated as "a water competitive rate" and it applied via the direct routes of such carriers as the Atlantic Coast Line Railroad to Pinners Point, Va., thence the old New York, Philadelphia and Norfolk Railroad, now the Norfolk division of the Pennsylvania Railroad to New York. In I. C. C. Docket 13449, North Carolina Pine Association, 107 I. C. C. 190, the Interstate Commerce Commission forced the all-rail carriers to apply the Goldsboro-New York rates via the all-rail routes through Richmond, Potomac Yard (Washington) and Hagerstown and to relate all of the rates from other points in the pine producing district of North Carolina to the Goldsboro-New York all-rail rate by the then existing differences. The rates to other destinations in Trunk Line and New England territories were fixed with relation to the Goldsboro-New York all-rail rate. As a

consequence of this decision the Goldsboro-New York rate become the base rate on lumber from the Carolina territory to Trunk Line and New England territories, and that rate reduced practically all of the northbound lumber rates from N. & W. Railway's Durham and Winston-Salem district stations, also from Roanoke and Lynchburg to the entire east. On my Exhibit 12 which I now offer, I have shown first the rate from Goldsboro to Eastern Port Cities also to Buffalo and Pittsburgh, and in the next two sections of the Exhibit I have compared the rates from Winston-Salem and Martinsville with the rates from Roanoke, and the rates from Durham and South Boston with the rates from Lynchburg. I call particular attention to the fact that the Goldsboro rates fixed the rates from Lynchburg and Roanoke and that the rates from our Durham and Winston-Salem district points show the influence of that low water competitive rate. In fact they were based on that rate and related to it by the differences which had existed prior to the time the water competitive rate was made applicable through Potomac Yard and Hagerstown. My Exhibit 12 shows that there is practically no difference, distance considered, between the branch line rates and the branch line junction rates and that the branch point rates are relatively lower because of the longer hauls than the rates from the branch line junction points, Roanoke and Lynchburg.

In my next Exhibit 13 which I now offer, I have shown a comparison of the lumber rates from Martinsville and Winston-Salem vs. Roanoke and from Durham and South Boston vs. Lynchurg to some important points in Central Freight Association territory. The greatest difference shown on this Exhibit between the branch junction rates and the branch line rates is less than half of the smallest difference developed by Witness Roberts on Exhibit 10 in

connection with the theoretical spread on Sixth Class articles.

The fourth most important item produced in North Carolina is furniture. The Norfolk and Western Railway has a number of furniture factories on its line, and in fact is the second largest carrier of furniture in Southern territory.

In December, 1928, I testified before the Interstate Commerce Commission in Rate Structure Investigation, Part 5, Furniture reported at 177 I. C. C. 5. In that proceeding the Norfolk and Western Railway, and other Southern carriers, was endeavoring to continue to maintain a system of northbound commodity rates on furniture from Southern points to Official territory substantially equivalent to the level within Official territory, so as to enable the Southern furniture manufacturers to compete in the markets of Official territory with the furniture manufacturers in that territory.

In the testimony I offered in that case I made a complete exposition of the furniture rates from our factories located on our Winston-Salem district and on our main line west and north of Roanoke to important points in CFA, Trunk Line and New England territories. Some of my exhibits showed that our rates from Winston-Salem were the same as from High Point, N. C., and from other important furniture producing points in North Carolina. Other exhibits showed that when furniture factories were later established at such points as Roanoke, Galax, Marion, Pulaski and Christiansburg, that it was necessary for Fourth Section reasons to establish from Roanoke and Waynesboro exactly the same rates as were in effect from Winston-Salem, Martinsville, Bassett and Rocky Mount, and that for commercial competitive reasons we also established practically the same rates from the furniture factories located on our Bristol line. I offer

as my Exhibit No. 14 a four page statement consisting of a title page and reproductions of three of the exhibits which I offered at the I. C. C. hearing in Docket 17000, Part 5, at Atlanta, Ga., in December, 1928. The figures on this Exhibit speak for themselves. It will be noted that there is practically no difference between the Roanoke rates and the Winston-Salem rates for example, although the distance from Roanoke is usually less than from Winston-Salem, so that the Winston rate is relatively less than the Roanoke rate and the revenue from the branch haul of furniture is relatively less than the revenue for the haul north thereof. This comment applies to rates to CFA territory as well as to rates to Trunk Line and New England territories.

Q. I notice that you have made no reference to the rates on fertilizer, silk and rayon manufactures and leather, shown on your Exhibit 9.

A. I have made no comparison of the fertilizer rates because intrastate in North Carolina, intrastate in Virginia and interstate throughout the whole Southern territory these rates are all on the Southern fertilizer scale and are on the same level, mile for mile. I have not made comparisons of the rates on silk, rayon and leather because there are no factories on our Durham and Winston Districts making these commodities.

Q. Please comment upon Roberts' Exhibit 16 and his testimony relating to it on pages 92 to 107, inclusive.

A. In order to gain a clear understanding of Exhibit R-16, it is necessary to read carefully the testimony relating to it on the pages mentioned.

As I understand it, the witness starts on lines A-3, B-3 and C-3, with gross revenue apportionable to the State of North Carolina on the statutory basis. I do not vouch for the accuracy of these foundation figures, nor am I in position to challenge them. It will be my pur-

pose to deal with the theory of remainder of the exhibit as applied to the foundation figures.

On lines A-4, B-4 and C-4 coal revenues is increased (11.19% for 1927, 11.21% for 1928 and 11.25% for 1929) because Exhibit R-8 purports to show that the branch line level of coal rates is higher than the main line level (111.19% for 1927, 111.21% for 1928 and 111.25% for 1929).

My Exhibit 2 shows that N. & W. Ry's revenue on coal transported over the Durham and Winston-Salem Divisions is actually less than revenue from coal transported to equi-distant points on the main line.

Then the merchandise revenue for each year is increased 78.41% because Exhibit R-12 purports to show that the relative level of the class and commodity rates applicable over the branches is 178.41% of the level of the class and commodity rates applicable over the main line.

In this connection, it is interesting to note that the witness has totally discarded the grotesque ratio of about 250% so laboriously developed by his Exhibits R-9 and R-10, because, to use his own words, "We do not know and cannot find out, what part of the total merchandise revenue touching North Carolina comes from that source (class rates)."

Neither does he make any use of the showing attempted by Exhibit R-11.

He does, however, find warrant for the use of the ratio developed by Exhibit R-12 because on that Exhibit both class and commodity rates are considered as applied to staple articles of merchandise and to movements which may be safely considered to be conservative for the purpose for which they are used.

Of course the prime objection to this Exhibit (R-12) lies in the assumption that there were actual movements

in sufficiently substantial volume to be controlling of the whole level of merchandise revenue, of the articles shown on the exhibit to Roanoke and Winston-Salem and to Lynchburg and Durham, at the rates shown.

But, taking the Exhibit as it stands, my testimony and exhibits clearly show that it (Exhibit R-12) shows only part of the rate picture and is sadly deficient as to showing the revenue picture.

As to the rate levels, let me briefly recall that my Exhibit 3 shows that by comparing the class rates from the East instead of from the West a different picture would be shown; my Exhibit 6 shows that local commodity scales from the branches to the main line (and in the reverse direction) are lower than on the main line proper; and that my Exhibits 10, 11, 12 and 13 show that the outbound commodity rates on the principal products of North Carolina's industries (as tabulated on Exhibit 9) are relatively lower than the rates on the same commodities from Roanoke and Lynchburg.

Then, as to the revenue picture my Exhibit 4 shows that over two-thirds of the loaded cars into and out of Winston-Salem are delivered to or received from our connections to which we have to allow substantial divisions. Nowhere in Roberts' analysis has any allowance been made for this important feature. We may draw some idea of the influence of these divisions from the revenue showing as to coal on my Exhibit 2.

Finally my Exhibit No. 5 shows that even as to the rates proper (without allowance for the effect of divisions) the Witness has failed to allow for the effect of hauls beyond Winston-Salem and Durham, which, as previously stated, comprise more than two-thirds of the traffic handled into and out of Durham and Winston-Salem.

On Lines A-7, B-7 and C-7 the branch line revenues elevated as above described are compounded by increasing them 19.76% because Exhibit R-15 purports to show that the North Carolina level of the branch line rates is 119.76% of the Viriginia level of the branch line rates.

I have shown that the class rates exhibited by Roberts on Exhibit R-15 were canceled on January 15, 1928; on my Exhibit No. 7 I have shown that the North Carolina intrastate rates applicable on the branches are actually lower than the Virginia intrastate rates applicable on the branches and in my testimony I have described the proceeding before the Interstate Commerce Commission by which the State of North Carolina was forced to increase its intrastate class rates.

There is positively no better method of comparing relative State rate levels than by comparison of intrastate rates.

I am not competent to comment upon the balance of the exhibit. Certainly the percentages by which the foundation revenues are increased are unreliable and erroneous as I have shown.

Q. What is your view of the statutory formula of straight mileage prorate for assignment of revenue to the State of North Carolina?

A. I am convinced that in this case it is simply impossible to prove that a straight mileage prorate of revenue does not attribute to the State of North Carolina all of the revenue that is earned there. Examination of individual rates, of rate history and of particular rate situations may be pursued to infinity, with the result that no confident generalization can be reached. Almost every factor is fairly disputable; moreover, if it be deemed proven, as in the case Mr. Roberts presents of coal rates to destinations on the North Carolina Branches, that revenue should be attributed on a higher basis to North

Carolina, still it is possible to show that the revenue should actually be attributed on a lower level for the much larger coal movement to points beyond the Southern termini of the branches. This illustration is typical. In every case where a witness indicates a higher rate level on one or more commodities, it is possible to produce opposing testimony to justify the conclusion of a lower North Carolina rate level on other important business. The assumption of the statute that a rate is earned evenly throughout the haul seems to me the only justifiable assumption, because nothing else is provable.

Q. Have you any comments on the concluding portion of the Roberts' testimony, pages 100-103?

A. I am not confident that I understand this portion of Mr. Roberts' testimony. My guess is that it is intended to prove the thesis that rates over all portions of any railroad are adjusted so as to pay something more than the cost of operation of each portion. But this is obviously untrue. Frequently, if not usually, such factors as competition with other railroads, competition between commodities and communities, attempts to stimulate particular businesses and the like, are controlling. The Railway Company must be content if, taking the entire business as a whole, a fair return is made, without too much regard to particular commodities and particular rates and portions of the line. Frequently, probably usually, the rate maker has to disregard the ascertained cost of operation of a particular branch or part of the railroad or part of the service in order to keep the traffic moving at all. Academically it might seem desirable to base and to make rates, as Mr. Roberts suggests, so that each part of the service should bear its own burden and furnish its own profit, but in practice that result is simply unattainable. If Mr. Roberts were right in his thesis, and rates could be so made as to furnish profit on each branch of

operation, then no railroad, prosperous as a whole, could ever obtain permission to abandon unprofitable branches (in fact, there would be no unprofitable branches) as we have done with our Potts Valley Branch and the Southern portion (in the last couple of months in North Carolina, by the way) of our Abingdon Branch.

(Signed) C. F. KEELEY.

KEELEY EXHIBIT No. 1

Keeley Exhibit No. 1 is a large map of Norfolk and Western Railway and Connections, and the requisite number of copies of this exhibit have been filed with the Clerk.

EXHIBIT NO. 2

Witness: Keeley.

Before the
Honorable Superior Court of Wake County,
North Carolina

In the matter of
Protest of Norfolk and Western Railway Company
Against the Assessment of Additional Income Taxes
for the Years 1927, 1928 and 1929.

Statement of 1929 Bituminous Coal Tonnages, Revenue, and Revenue Per Ton From Norfolk & Western Railway Mines

	Tonnage	N&W Revenue	Revenue per ton (Cents)
To N. & W. Winston-Salem Division Stations, Boones Mill, Va. to Winston-Salem, N. C., inclusive	102,389	$ 298,945.55	292.0
To Points via Winston-Salem and Connections	608,153	831,490.01	136.7
To Points via Walnut Cove and Connections	57,983	90,428.64	156.0
To Points via Fieldale and Connections	23,999	35,714.69	148.8
Total	792,524	$1,256,578.89	158.6

To N. & W. Ry. Durham Division Stations, Rustburg, Va., to Durham, N. C., inclusive	43,566	$ 129,929.71	298.2
To Points via Durham and Connections	243,518	389,019.71	159.7
Total	287,084	$ 518,949.42	180.8
To All These Points	1,079,608	$1,775,528.31	164.5

Office of General Traffic Manager,
Norfolk and Western Railway Company,
Roanoke, Virginia, March 9, 1933 f

Witness: Keeley.
Exhibit No. 3.
Sheet 1

Before the
HONORABLE SUPERIOR COURT OF WAKE COUNTY, NORTH CAROLINA
In the Matter of
PROTEST OF NORFOLK AND WESTERN RAILWAY COMPANY AGAINST THE ASSESSMENT OF ADDITIONAL INCOME TAXES FOR THE YEARS 1927, 1928 AND 1929

Comparison of Relative Levels of Class Rates from Trunk Line and New England Territories to N. & W. Ry. Carolina Branches vs. remainder of system.

	Miles	1	2	3	4	5	6	Difference between main line junction and branch line point 1	2	3	4	5	6
From HARRISBURG, PA. To													
ROANOKE.....VA.	317	106½	93	70	48	40½	33½						
Martinsville.....Va.	379	126	110	92	70½	61½	48	19½	17	22	22½	21	14½
Mayodan.....N.C.	405	131½	111½	98	79	62	53	25	18½	28	31	21½	19½
Winston-Salem.....N.C.	438	131½	111½	98	79	62	53	25	18½	28	31	21½	19½

LYNCHBURG	VA.	371	99½	85½	68	46	38	31							
South Boston	Va.	435	115½	99	83	60	50	41	16	13½	15	14	12	10	
Roxboro	N.C.	457	131½	111½	98	79	62	53	32	26	30	33	24	22	
Durham	N.C.	488	131½	111½	98	79	62	53	32	26	30	33	24	22	
From BOSTON, MASS To															
ROANOKE	VA.	723	140½	121½	107	74½	66½	53½							
Martinsville	Va.	785	140½	121½	107	78	69	56	--	--	--	3½	2½	2½	
Mayodan	N.C.	811	140½	121½	107	89	69½	61	--	--	--	14½	3	7½	
Winston-Salem	N.C.	844	140½	121½	107	89	69½	61	--	--	--	14½	3	7½	
LYNCHBURG	VA.	622	102½	90	72½	53½	44	40½							
South Boston	Va.	686	123	106½	90	68	57	48	20½	16½	17½	14½	13	7½	
Roxboro	N.C.	708	140½	121½	107	89	69½	61	38	31½	34½	35½	25½	20½	
Durham	N.C.	739	140½	121½	107	89	69½	61	38	31½	34½	35½	25½	20½	
From New York, N. Y. To															
ROANOKE	VA.	507	129	113	97	60½	53½	44							
Martinsville	Va.	569	129	113	97	70½	61½	48	--	--	--	10	8	4	
Mayodan	N.C.	595	133	113½	100	81	63	54	4	½	3	20½	9½	10	
Winston-Salem	N.C.	628	133	113½	100	81	63	54	4	½	3	20½	9½	10	

Witness: Keeley.
Exhibit No. 3.
Sheet 2.

	Miles	1	2	3	4	5	6	Difference between main line junction and branch line point 1	2	3	4	5	6
LYNCHBURG.....VA.	405	102½	90	70	47½	40½	33½						
South Boston.....Va.	469	115½	99	83	60	50	41	13	9	13	12½	9½	7½
Roxboro.....N.C.	491	133	113½	100	81	63	54	30½	23½	30	33½	22½	20½
Durham.....N.C.	522	133	113½	100	81	63	54	30½	23½	30	33½	22½	20½
From PHILADELPHIA, PA. To									Sheet 3				
ROANOKE.....VA.	425	119½	99½	83½	56½	47½	40½						
Martinsville.....Va.	487	126	110	92	70½	61½	[illegible]	6½	10½	8½	14	14	7½
Mayodan.....N.C.	513	131½	111½	98	79	62		12	12	14½	22½	14½	12½
Winston-Salem.....N.C.	546	131½	111½	98	79	62		12	12	14½	22½	14½	12½
LYNCHBURG.....VA.	307	102½	90	70	47½	40½	31½						
South Boston.....Va.	371	115½	99	83	60	50	41	13	9	13	12½	9½	7½
Roxboro.....N.C.	393	131½	111½	98	79	62	53	29	21½	28	31½	21½	19½
Durham.....N.C.	424	131½	111½	98	79	62	53	29	21½	28	31½	21½	19½

From Baltimore, Md. To														
Roanoke	Va.	304	110½	93	73	51	44	36½						
Martinsville	Va.	366	117	101	83	65	56	42	6½	8	10	14	12	5½
Mayodan	N.C.	392	122½	103½	92	74½	59½	50½	12	10½	19	23½	15½	14
Winston-Salem	N.C.	425	122½	103½	92	74½	59½	50½	12	10½	19	23½	15½	14
Lynchburg	Va:	212	99½	85½	68	46	38	31						
South Boston	Va.	276	106½	90	74	54	43½	34½	7	4½	6	8	5½	3½
Roxboro	N.C.	298	122½	103½	92	74½	59½	50½	23	18	24	28½	21½	19½
Durham	N.C.	329	122½	103½	92	74½	59½	50½	23	18	24	28½	21½	19½

Tariff Authority:
PRR I. C. C. Nos. 166, 178, GO I. C. C. No. 14748.
J. J. Cottrell's I. C. C. Nos. 589, 646.
WM Ry. I. C. C. No. 8133.
NYNH&H I. C. C. No. F-3120.
Reading Co. I. C. C. No. 756.

Office of General Traffic Manager,
Norfolk and Western Railway Co.,
Roanoke, Virginia—March 9, 1933. f

EXHIBIT NO. 4

Witness: Keeley.

Before the
Honorable Superior Court of Wake County,
North Carolina

In the matter of
Protest of Norfolk and Western Railway Company
Against the Assessment of Additional Income Taxes
for the Years 1927, 1928 and 1929.

Loaded Cars Other Than Coal and Coke

	1932	1931
Into Winston-Salem from North	15,381	20,584
Del'd to Winston-Salem Connections	10,918	15,177
Out of Winston-Salem for North	20,068	28,958
Rec'd from Winston-Salem Connections	14,286	21,644
Into Durham from North	4,446	5,550
Del'd to Durham Connections	3,506	4,224
Out of Durham for North	3,684	5,269
Rec'd from Durham Connections	2,472	3,771
Into Winston-Salem and Durham from North	19,827	26,134
Del'd Winston-Salem and Durham Connections	14,424	19,401
Out of Winston-Salem and Durham for North	23,752	34,227
Rec'd from Winston-Salem and Durham Connections	16,758	25,415

Office of General Traffic Manager,
Norfolk and Western Railway Co.,
Roanoke, Va., March 9, 1933 f

Before the
Honorable Superior Court of Wake County,
North Carolina

In the matter of
Protest of Norfolk and Western Railway Company
Against the Assessment of Additional Income
Taxes for the Years 1927, 1928 and 1929.

Witness: KEELEY.
Exhibit No. 5

Comparison of Carolina proportion of First to Sixth Class rates, Chicago, Ill., to Wadesboro, N. C., on Mileage prorate basis, with Carolina proportion of through rate.

From Chicago, Ill. To Wadesboro, N. C.	Miles Rke	Miles Byd	Miles Total	Rates to Carolina Des'n	Average rate Per Mile to Carolina Destination	Carolina Proportion On Mileage Prorate	Difference Over Rke Rate	Ratio of Carolina Proportion to Mileage Prorate
1st class—								
204	703	209	912	139	204	.2236c	46.7c	65.0c
2nd class—								
173				121½	173	.1897	39.6	51.5
3rd class—								
143				91½	143	.1568	32.8	51.5
4th class—								
108				63	108	.1184	24.7	45.0
5th class—								
92				53½	92	.1008	21.1	38.5
6th class—								
74				44½	74	.0811	16.9	29.5
							181.8	281.0

154.6%

Office of General Traffic Manager,
Norfolk and Western Railway Co.,
Roanoke, Virginia—April 7, 1933.

Witness: Keeley.
Exhibit No. 6.

Before the
HONORABLE SUPERIOR COURT OF WAKE COUNTY, NORTH CAROLINA
In the Matter of
PROTEST OF NORFOLK AND WESTERN RAILWAY COMPANY AGAINST THE ASSESSMENT OF ADDITIONAL INCOME TAXES FOR THE YEARS 1927, 1928 AND 1929

Statement of various commodity rate scales between the Durham and Winston-Salem Districts on one hand and main line stations between Norfolk and Bristol on the other, contrasted with rates on the main line.

	Stone, Sawed or Dressed		Stone, Crushed		Lumber		Slag, Furnace		Concrete posts reinforced with steel	
	(Cents per ton 2000 lbs.)								(Cents per 100 lbs.)	
Miles	D&WS Districts	Main Line	D&WS Districts	Main Line	D&WS Districts	Main Line	D&WS Districts	Main Line	D&WS Districts	Main Line
5	100	120	72	70	6.5	7	2.5	3	5	6
10	120	130	72	70	6.5	7	2.5	3	6	6.5
20	130	140	72	90	7	8	2.5	3.5	6.5	7
30	130	140	72	90	9	10	2.5	3.5	6.5	7
40	140	160	81	100	9.5	11	3.5	5	7	8

50	140	160	90	120	10.5	11.5	4.5	6	7	8
60	160	180	99	140	11.5	12.5	5	7	8	9
70	180	200	99	140	11.5	13	5	7	9	10
80	180	200	117	150	12.5	14	6	8	9	10
90	180	200	117	150	13.5	15.5	6	8	9	10
100	210	230	117	150	14.5	16	6	8	10.5	11.5
110	210	230	126	160	15	16	6.5	9	10.5	11.5
120	210	230	126	160	16	17.5	6.5	9	10.5	11.5
130	230	260	135	180	16	18.5	7	9.5	11.5	13
140	230	260	135	180	17	19	7	9.5	11.5	13
150	230	260	135	180	17.5	20.5	7	9.5	11.5	13

TARIFF AUTHORITY: N. & W. Ry. I. C. C. No. 8056, 8065.

Office of General Traffic Manager,
Norfolk and Western Railway Company,
Roanoke, Virginia—March 14, 1933—h.

Witness: Keeley.
Exhibit No. 7.
Sheet No. 1.

Before the
HONORABLE SUPERIOR COURT OF WAKE COUNTY, NORTH CAROLINA
In the Matter of
PROTEST OF NORFOLK AND WESTERN RAILWAY COMPANY AGAINST THE ASSESSMENT OF ADDITIONAL INCOME TAXES FOR THE YEARS 1927, 1928 AND 1929

Comparison of INTRASTATE Class and Commodity Rate Scales on N. & W. Ry's. Durham and Winston-Salem Districts in Virginia with that applying in North Carolina.

Rates in cents per 100 pounds, except as otherwise shown

	Ice, Carload per ton 2000 pounds		Salt, Carload		Sewer Pipe Carload		Building Material Carload		Scrap Iron Carload		Lime, Common Building In cents per ton 2,000 pounds		
											30,000 pounds Min.	50,000 pounds Min.	24,000 pounds Min.
Miles	N. C.	Va.	N. C.	Va.	N. C.	Va.	N. C.	Va.	N. C.	Va.	N. C.	N. C.	Va.
5	68	90	5¼	7	2.9	8	5¼	8½	4½	8½	70	56	100
10	90	90	5¾	7	3.6	10	5¾	8½	6	10½	90	72	100
15	101	102	6½	7	4.4	11¼	6½	11½	6½	11½	100	80	120

20	101	102	7	7	4.6	11¼	7	11½	7	11½	110	88	120
25	113	113	8	7	5.4	13	8	14	8	13	120	96	130
30	124	113	8	7	6.0	13	8	14	8½	13	130	104	130
35	124	124	8½	7	6.4	14½	8½	16	8½	15	140	112	140
40	135	124	8½	7	6.8	14½	8½	16	9	15	150	120	140
45	146	147	9¼	8½	6.8	16½	9¼	17	9	16	160	128	140
50	146	147	9¼	8½	6.8	16½	9¼	17	9	16	170	136	140
55	146	158	10	8½	7.4	18	10	18½	10½	17½	180	144	160
Total	1,294	1,310	86	81½	61.1	146½	86	152½	86½	147½	1,420	1,136	1,420
Average	118	119	8	7½	5½	13½	8	14	8	13½	129	103	129

Witness: Keeley.
Exhibit No. 7.
Sheet 2.

Miles	Tobacco Unmanufactured Any Quantity		Live Stock, viz: Cattle, Single Deck (See Note 1)		Plaster, viz: (Wall)	
	N. C.	Va.	N. C.	Va.	N. C.	Va.
5	10.5	11.5	1400	2000	4.1	6
10	11.5	13	1400	2000	5.4	6
15	13	16	1600	2250	5.9	6.5
20	14	16	1800	2250	6.3	6.5
25	16	21.5	2000	2500	7.2	7
30	17	21.5	2200	2500	7.7	7
35	18.5	22.5	2400	2850	7.7	8
40	18.5	22.5	2600	2850	8.1	8
45	21.5	25	2800	3100	8.1	8
50	21.5	25	2800	3100	8.1	8
55	22.5	26	3000	3400	9.5	8.5
Total	184.5	220.5	24000	22200	78.1	79.5
Average	17	20	2182	2018	7	7

CLASS RATES

	North Carolina						Virginia					
Miles	1	2	3	4	5	6	1	2	3	4	5	6
5	17	14	11.5	10.5	8.5	7	20	16	13	11.5	10.5	8.5
10	21.5	18.5	16	13	11.5	8.5	26	20	16	13	11.5	10.5
15	25	21.5	18.5	16	13	10.5	33	25	20	16	13	11.5
20	29.5	25	22.5	18.5	14	11.5	33	25	20	16	13	11.5
25	34	28.5	25	20	16	13	38.5	29	25	21.5	15	13
30	38.5	33	28.5	22.5	17	14	38.5	29	25	21.5	15	13
35	41	35.5	29.5	24.5	18.5	14	45	36	29	22.5	16	15
40	44	36.5	31	25	20	16	45	36	29	22.5	16	15
45	47	38.5	33	27	20	16	52	42.5	33	26	17.5	16
50	49.5	39.5	34	28.5	21.5	17	52	42.5	33	26	17.5	16
55	51	41	35.5	28.5	22.5	17	55.5	45	36	29	20	17.5

NOTE 1
Rates in cents per car basis, carload minimum 20,000 pounds, except rates shown under Virginia apply per car regardless of weight.

Sheet 3

Tariff Authority
N&W Ry. I.C.C. No. 8261, 8056

Office of General Traffic Manager,
Norfolk and Western Railway Company,
Roanoke, Virginia—March 13, 1933.
h

Before
HONORABLE SUPERIOR COURT OF

In the
PROTEST OF NORFOLK AND WESTERN
ASSESSMENT OF ADDITIONAL
1927, 1928

Comparison of Class Rates on N. & W. Ry's. Durham and
applicable

(Rates In Cents

In Effect

	North Carolina					
Miles	1	2	3	4	5	6
5	15	12½	10	9	7½	6½
10	19	16½	14	11½	10	7½
15	22½	19	16½	14	11½	9
20	26½	22½	20	16½	12½	10
25	30	25	22½	17½	14	11½
30	34	29	25	20	15	12½
35	36	31½	26½	21½	16½	12½
40	39	32½	27½	22½	17½	14
45	41½	34	29	24	17½	14
50	44	35	30	25	19	15
55	45	36½	31½	25	20	15

Witness: Keeley.
Exhibit No. 8.

the
WAKE COUNTY, NORTH CAROLINA

matter of
RAILWAY COMPANY AGAINST THE
INCOME TAXES FOR THE YEARS
AND 1929

Winston-Salem Districts in North Carolina with the rates in Virginia.

Per 100 Pounds.)

August 25, 1920

Virginia					
1	2	3	4	5	6
17½	14½	11½	10	9	7½
23	17½	14½	11½	10	9
29	22	17½	14½	11½	10
34½	25½	22	19	13	11½
40	32	25½	20	14½	13
46½	37½	29	23	15½	14½
49	40	32	25½	17½	15½

(Rates In Cents

In Effect

	North Carolina						Vir		
							Durham and Dis		
Miles.	1	2	3	4	5	6	1	2	3
5	19	15½	12½	11½	9½	8	22	18	14½
10	24½	20½	17½	14½	12½	9½	29	22	18
15	28	24½	20½	17½	14½	11½	36½	27½	22
20	33	28	25	20½	15½	12½			
25	37½	31½	28	22	17½	14½	43	32	27½
30	42½	36½	31½	25	19	15½			
35	45½	39½	33	27	20½	15½	50	40	32
40	49	40½	34½	28	22	17½			
45	52	42½	36½	30	22½	17½	58	47	36½
50	55	44	37½	31½	24	19			
55	56½	45½	39½	31½	25	19	61½	50	40

Per 100 Pounds.)

August 26, 1920

ginia

Winston-Salem tricts			Other than Durham and Winston-Salem Districts					
4	5	6	1	2	3	4	5	6
12½	11½	9½	24½	20½	16	14	12½	10½
14½	12½	11½	32	24½	20½	16	14	12½
18	14½	12½	40½	31	24½	20½	16	14
24	16½	14½	48½	35½	31	26½	18	16
25	18	16½	56	45	35½	28	20½	18
29	19½	18	65	52½	40½	32	21½	20½
32½	22	19½	68½	56	45	35½	24½	21½

In Effect July 1, 1922

	North Carolina						Vir		
							Durham and Dis		
Miles	1	2	3	4	5	6	1	2	3
5	17	14	11½	10½	8½	7	20	16	13
10	21½	18½	16	13	11½	8½	26	20	16
15	25	21½	18½	16	13	10½	33	25	20
20	29½	25	22½	18½	14	11½			
25	34	28½	25	20	16	13	38½	29	25
30	38½	33	28½	22½	17	14			
35	41	35½	29½	24½	18½	14	45	36	29
40	44	36½	31	25	20	16			
45	47	38½	33	27	20	16	52	42½	33
50	49½	39½	34	28½	21½	17			
55	51	41	35½	28½	22½	17	55½	45	36

TARIFF AUTHORITY: N. & W. Ry. I. C. C. No. 6451, 6786, 6723, 6980, 7369, 8261, 8056.

Office of General Traffic Manager,
Norfolk and Western Railway Company,
Roanoke, Virginia—March 14, 1933—h.

and Continuing through 1929

ginia

Winston-Salem tricts			Other than Durham and Winston-Salem Districts					
4	5	6	1	2	3	4	5	6
11½	10½	8½	22	18½	14½	12½	11½	9½
13	11½	10½	29	22	18½	14½	12½	11½
16	13	11½	36½	28	22	18½	14½	12½
21½	15	13	43½	32	28	24	1[illegible]	14½
22½	16	15	50½	40½	32	25	18½	16
26	17½	16	58½	47½	36½	29	19½	18½
29	20	17½	61½	50½	40½	32	22	19½

Before the
Honorable Superior Court of Wake County,
North Carolina

In the matter of
Protest of Norfolk and Western Railway Company
Against the Assessment of Additional Income
Taxes for the Years 1927, 1928 and 1929.

Witness: KEELEY.
Exhibit No. 9

Extract from Census of Manufacturers—North Carolina —1929—showing, in the order of its importance, the value of principal products of the industries of that State.

Industry		Value of Products
Cigars and Cigarettes		$ 480,038,850.00
Cotton Goods	$317,005,212.00	
Dyeing and finishing textiles	16,079,262.00	
Cotton small wares	995,433.00	
Cordage and Twine	7,925,174.00	
Knit Goods	86,112,765.00	
Total Cotton and Knitting Factory Products		428,117,846.00
Lumber	$ 39,360,383.00	
Cooperage	1,369,766.00	
Planing mill products	18,279,171.00	
Total Forest Products		59,009,320.00
Furniture		56,737,489.00
Fertilizer		22,956,326.00
Silk and Rayon manufactures		18,587,609.00
Leather		18,017,395.00
Total above products		$1,083,464,834.00
Grand total for all industries		$1,311,924,352.00

Office of General Traffic Manager,
Norfolk and Western Ry. Co.,
Roanoke, Virginia—March 9, 1933.

Witness: Keeley.
Exhibit No. 10.

Before the
HONORABLE SUPERIOR COURT OF WAKE COUNTY, NORTH CAROLINA
In the Matter of
PROTEST OF NORFOLK AND WESTERN RAILWAY COMPANY AGAINST THE ASSESSMENT OF ADDITIONAL INCOME TAXES FOR THE YEARS 1927, 1928 AND 1929

Comparison of Rates on Cigarettes and Manufactured Tobacco, less than carload, from Winston-Salem and Durham, N. C. vs. Roanoke, Va., and Lynchburg, Va. to various points.

From	Winston-Salem		Roanoke		Durham		Lynchburg	
To	Cigarettes Smoking	Plug or Twist	Cigarettes Smoking	Plug or Twist	Cigarettes Smoking	Plug or Twist	Cigarettes Smoking	Plug or Twist
Baltimore Md.	102	83	110.5	73	102	83	99.5	68
Philadelphia Pa.	111	98	114	78.5	111	98	102.5	70
New York N.Y.	111	100	114	78.5	111	100	102.5	70
Boston Mass.	119	107	151.5	109	119	107	102.5	72.5
Albany N.Y.	114	102	129	97	114	102	106.5	70
Buffalo N.Y.	119	111	106.5	70	119	111	106.5	70
Pittsburgh Pa.	111.5	102.5	106.5	70	111.5	102.5	106.5	70
Cincinnati Ohio	127.5	95	107.5	75	127.5	95	107.5	75

St. Louis	Mo.	170	123.5	150	103.5	170	123.5	150	103.5
Chicago	Ill.	146	107.5	126	87.5	146	107.5	126	87.5
Indianapolis	Ind.	136	101	116	81	136	101	116	81
Detroit	Mich.	126.5	90.5	106.5	70.5	126.5	90.5	106.5	70.5

TARIFF AUTHORITIES:
Agent J. J. Cottrell's I. C. C. 738, 609.
Agent W. K. Weisiger's I. C. C. 160.
N. & W. Ry. I. C. C. 7500, 8304, 7495.
Southern Rys. I. C. C. A-10045, A-9781.

Office of General Traffic Manager,
Norfolk and Western Railway Company,
Roanoke, Virginia—March 14, 1933—h.

Before the

HONORABLE SUPERIOR COURT OF WAKE COUNTY, NORTH CAROLINA

In the Matter of

PROTEST OF NORFOLK AND WESTERN RAILWAY COMPANY AGAINST THE ASSESSMENT OF ADDITIONAL INCOME TAXES FOR THE YEARS 1927, 1928 AND 1929

Witness: Keeley.
Exhibit No. 11.

Comparison of Rates on Cotton and Knitting Factory Products, LCL, from Winston-Salem, N. C. and Martinsville, Va., vs. Roanoke, Va., and from Durham, N. C., and Roxboro, N. C. vs. Lynchburg, Va., to various points.

From	Winston-Salem		Martinsville		Roanoke		Durham		Roxboro	Lynchburg	
	CF	KF	CF	KF	CF	KF	CF	KF	CF	CF	KF
To	Products										
Baltimore.....Md.	60	79.5	60	79.5	53	70	60	79.5	51	46	72.5
Philadelphia.....Pa.	66	84.5	66	84.5	60.5	78.5	66	84.5	57	47.5	82
New York.....N.Y.	66	84.5	66	84.5	60.5	78.5	66	84.5	57	47.5	82
Boston.....Mass.	74	105	74	105	70	88	74	105	65	65	102.5

Albany	N.Y.	76	108	76	108	97	129	76	108	67	79	106.5
Buffalo	N.Y.	82	120	68	----	79	106.5	82	120	70.5	79	106.5
Pittsburgh	Pa.	81	117	61.5	----	79	106.5	81	117	70.5	79	106.5
Cincinnati	Ohio	83.5	94.5	83.5	94.5	80.5	107.5	83.5	94.5	83.5	80.5	107.5
St. Louis	Mo.	90	110	90	110	112	150	90	110	90	112	150
Chicago	Ill.	97.5	132	97.5	132	94	126	97.5	132	97.5	94	126
Indianapolis	Ind.	97.5	131.5	97.5	131.5	86.5	116	97.5	131.5	97.5	86.5	116
Detroit	Mich.	97.5	126	97.5	126	79	106.5	97.5	126	97.5	79	106.5

TARIFF AUTHORITIES:
Agent J. J. Cottrell's I. C. C. 741, 739.
N. & W. Ry. I. C. C. 8235, 8304.
Agent W. K. Weisiger's I. C. C. 160.
Southern Ry. I. C. C. A-10052, A-9781, A-10045.

EXPLANATION OF ABBREVIATIONS:
CF—Cotton Factory.
KF—Knitting Factory.

Office of General Traffic Manager,
Norfolk and Western Railway Company,
Roanoke, Virginia—March 15, 1933—h.

Before the
Honorable Superior Court of Wake County,
North Carolina

In the matter of
Protest of Norfolk and Western Railway Company
Against the Assessment of Additional Income
Taxes for the years 1927, 1928 and 1929.

Witness: KEELEY.
Exhibit No 12

Comparison of Rates in effect during 1927, 1928 and 1929 on Lumber from Goldsboro, N. C., and from N&W Ry., Durham and Winston-Salem Division Stations with rates from Roanoke, Va., and Lynchburg, Va., to Trunk Line and New England Territory.

	TO					
FROM	New York N. Y.	Philadelphia Pa.	Baltimore Md.	Boston Mass.	Buffalo N. Y.	Pittsburgh Pa.
Goldsboro, N. C.	31.5	26	25	35	35	32.5
Winston-Salem, N. C.	35	29.5	28.5	38.5	37	34.5
Martinsville, Va.	34.5	29	28	39	36.5	28
Roanoke, Va.	31.5	26	25	35	29	26
Durham, N. C.	33.5	28	27	37	37	34.5
South Boston, Va.	31.5	26	25	35	35	28
Lynchburg, Va.	31.5	26	25	35	29	26

Tariff Authorities:
N&W ICC 7928
Agent J. H. Glenn's ICC A-541 and A-604.

Office of General Traffic Manager,
Norfolk and Western Railway Company,
Roanoke, Virginia—March 14, 1933—h

Before the
Honorable Superior Court of Wake County,
North Carolina

In the matter of
Protest of Norfolk and Western Railway Company
Against the Assessment of Additional Income
Taxes for the years 1927, 1928 and 1929.

Witness: KEELEY.
Exhibit No. 13

Comparison of Rates in effect during 1927, 1928 and 1929 on Lumber, from N&W Ry. Durham and Winston-Salem Division Stations with Rates from Roanoke, Va., and Lynchburg, Va., to Central Freight Association Territory.

	TO				
	Cleveland	Chicago	Indianapolis	St. Louis	Toledo
FROM	Ohio	Ill.	Ind.	Mo.	Ohio
Roanoke, Va.	29	34.5	32	40.5	29
Martinsville, Va.	34.5	39.5	37.5	45.5	36
Winston-Sal., N. C.	38.5	43	41	49	39.5
		—x—			
Lynchburg, Va.	29	34.5	32	40.5	29
South Boston, Va...	32.5	37.5	34.5	43	34
Durham, N. C.....	38	43	40	48.5	39

Tariff Authorities:
N&W ICC 8030
Agent O. E. Lowrys ICC 164

Office of General Traffic Manager,
Norfolk and Western Railway Company,
Roanoke, Virginia—March 14, 1933—h

Before the Honorable Superior Court of Wake County, North Carolina.

In the matter of Protest of Norfolk and Western Railway Company Against the Assessment of Additional Income Taxes for the Years 1927, 1928 and 1929.

Witness: Keeley.
Exhibit No. 14.

Reproduction of Witness Keeley's Exhibits 609, 611 and 613, at hearing in Atlanta, Ga., December 4-8, 1928 in "Rate Structure Investigation—Furniture," ICC Docket 17000, Part 5.

NOTE—The rates shown on these exhibits were in effect during the years 1927, 1928 and 1929.

Office of General Traffic Manager, N. & W. Ry. Co.,
Roanoke, Virginia, March 13, 1933.

Keeley Exhibit No. 14.
I. C. C. Docket No. 17000, Part 5.
Witness: Keeley.
Exhibit No. 609.

Rates on Furniture, Carload Minimum Weight 12,000 Pounds, from N. & W. Ry. factories located in Virginia, North Carolina and Bristol, Va.-Tenn. to Eastern Port Cities.

(In Cents Per 100 Pounds)

To	Boston, Mass.					New York N. Y.				
	All Rail			Water		All Rail			Rail-Water	
	Miles	Route	Rate	Miles to Norf.	Rate	Miles	Route	Rate	Miles to Norf.	Rate
FROM										
Winston-Salem N.C.	758	Ly	96	256	96	531	Ly	93	256	93
Walkertown N.C.	767	Ly	96	265	96	540	Ly	93	265	93
Stoneville N.C.	752	Ly	96	266	96	527	Ro	93	266	93
Martinsville Va.	725	Ly	96	244	96	498	Ly	93	244	93
Bassett Va.	724	Ro	96	254	96	497	Ro	93	254	93
Rocky Mount Va.	699	Ro	96	265	96	472	Ro	92½	265	93
Roanoke Va.	672		96	238	96	445	Ro	92½	238	92½
Waynesboro Va.	586	Pot.Yd.	96	209	----	359	Pot.Yd.	92½	209	----
Christiansburg Va.	704	Ro	96	270	96	477	Ro	93	270	93
Pulaski Va.	730	Ro	96	302	96	503	Ro	93	302	93

Galax	Va.	782	Ro	96	354	96	555	Ro	93	354	93
Marion	Va.	778	Ro	96	350	96	551	Ro	93	350	93
Bristol	Va.-Tenn.	822	Ro	96	388	96	595	Ro	93	388	93
Group Average		731			282		504			282	

From	To		Philadelphia, Pa.				Baltimore, Md.				
Winston-Salem	N.C.	443	Ly	91	256	91	349	Ly	89	256	89
Walkertown	N.C.	452	Ly	91	265	91	358	Ly	89	265	89
Stoneville	N.C.	437	Ly	91	266	91	343	Ly	89	266	89
Martinsville	Va.	410	Ly	91	244	91	316	Ly	89	244	89
Bassett	Va.	409	Ro	91	254	91	315	Ro	89	254	89
Rocky Mount	Va.	384	Ro	79½	265	91	290	Ro	70	265	89
Roanoke	Va.	357		79½	238	79½	263		70	238	70
Waynesboro	Va.	271	Pot.Yd.	79½	209	----	177	Pot.Yd.	70	209	----
Christiansburg	Va.	389	Ro	91	270	91	295	Ro	89	270	89
Pulaski	Va.	415	Ro	91	302	91	321	Ro	89	302	89
Galax	Va.	467	Ro	91	354	91	373	Ro	89	354	89
Marion	Va.	463	Ro	91	350	91	369	Ro	89	350	89
Bristol	Va.-Tenn.	507	Ro	91	388	91	413	Ro	89	388	89
Group Average		416			282		322			282	

TARIFF AUTHORITIES:
J. J. Cottrell, Agent's I. C. C. No. 660, Sup. No. 39.
J. J. Cottrell, Agent's I. C. C. No. 711.
N. & W. Ry. I. C. C. No. 8235.

EXPLANATION OF ROUTE SYMBOLS:
Ly—Lynchburg.
Ro—Roanoke.
Pot.Yd.—Potomac Yard.

Keeley Exhibit No. 14.
I. C. C. Docket No. 17000, Part 5.
Witness: Keeley.
Exhibit No. 611.

Rates on Furniture, Carload Minimum Weight 12,000 Pounds, from N. & W. Ry. factories located in Virginia, North Carolina and Bristol, Va.-Tenn., to Interior Eastern and Buffalo-Pittsburgh Territories.

(In Cents Per 100 Pounds)

	To	Albany, N. Y.			Rochester, N. Y.			Buffalo, N. Y.			Pittsburgh, Pa.		
From		Miles	Route	Rate	Miles	Route	Rate	Miles	Route	Rate	Miles	Route	Rate
Winston-Salem	N.C.	672	Ly	96	697	Ro	96	733	Ro	100	553	Ro	96
Walkertown	N.C.	681	Ly	96	688	Ro	96	724	Ro	100	544	Ro	96
Stoneville	N.C.	666	Ly	96	657	Ro	96	693	Ro	100	513	Ro	96
Martinsville	Va.	639	Ly	96	637	Ro	96	673	Ro	100	493	Ro	96
Bassett	Va.	638	Ly	96	627	Ro	96	663	Ro	100	465	Ro	96
Rocky Mount	Va.	613	Ly	94½	602	Ro	94½	638	Ro	92½	440	Ro	75½

Roanoke	Va.	586		94½	575		94½	611		92½	431		75½
Waynesboro	Va.	497	Ha	94½	486	Ha	94½	528	Ha	92½	366	Ha	75½
Christiansburg	Va.	618	Ro	95	607	Ro	95	643	Ro	100	463	Ro	96
Pulaski	Va.	644	Ro	95	633	Ro	95	669	Ro	100	489	Ro	96
Galax	Va.	696	Ro	95	685	Ro	95	721	Ro	100	541	Ro	96
Marion	Va.	692	Ro	95	681	Ro	95	717	Ro	100	537	Ro	96
Bristol	Va.-Tenn.	736	Ro	95	725	Ro	95	761	Ro	100	581	Ro	96
Group Average		644			638			675			494		

TARIFF AUTHORITIES:
J. J. Cottrell, Agent's I. C. C. No. 660, Sup. No. 39.
N. & W. Ry. I. C. C. No. 8235.

EXPLANATION OF ROUTE SYMBOLS:
Ro—Roanoke.
Ha—Hagerstown.
Ly—Lynchburg.

Keeley Exhibit No. 14.
Witness: Keeley.
I. C. C. Docket No. 17000, Part 5.
Exhibit No. 613.

Rates on Furniture, Carload Minimum Weight 12,000 Pounds, from N. & W. Ry. factories located in Virginia, North Carolina and Bristol, Va.-Tenn., to representative points in Central Freight Association Territory.

(In Cents Per 100 Pounds)

From	To	Columbus, Ohio			Cincinnati, Ohio			Cleveland, Ohio			Detroit, Mich.		
		Miles	Route	Rate	Miles	Route	Rate	Miles	Route	Rate	Miles	Route	Rate
Winston-Salem	N.C.	523	Ro	107	555	----	81½	636	Ro	107	705	Ro	107
Walkertown	N.C.	514	Ro	107	546	----	81½	627	Ro	107	696	Ro	107
Stoneville	N.C.	483	Ro	107	515	----	81½	596	Ro	107	665	Ro	107
Martinsville	Va.	463	Ro	107	495	----	81½	576	Ro	107	645	Ro	107
Bassett	Va.	452	Ro	107	485	----	81½	566	Ro	107	635	Ro	107
Rocky Mount	Va.	428	Ro	107	460	----	81½	541	Ro	107	610	Ro	107
Roanoke	Va.	401	----	93	428	----	66½	514	----	93	583	----	93
Waynesboro	Va.	442	----	93	449	----	66½	580	----	93	623	----	93
Christiansburg	Va.	390	----	93	397	----	66½	528	----	93	571	----	93
Pulaski	Va.	394	----	93	401	----	66½	532	----	93	575	----	93
Galax	Va.	446	----	93	453	----	66½	584	----	93	627	----	93

Marion	Va.	436	----	93	404	----	66½	574	----	93	617	----	93
Bristol	Va.-Tenn.	392	----	93	360	----	66½	530	----	93	573	----	93
Group Average		443			457			568			625		
Winston-Salem	N.C.	827	Ro	97	641	Ro	107½	837	Ro	121	870	Ro	113
Walkertown	N.C.	820	Ro	97	632	Ro	107½	828	Ro	121	861	Ro	113
Stoneville	N.C.	789	Ro	97	601	Ro	107½	979	Ro	121	830	Ro	113
Martinsville	Va.	769	Ro	97	581	Ro	107½	777	Ro	121	810	Ro	113
Bassett	Va.	759	Ro	97	571	Ro	107½	757	Ro	121	800	Ro	113
Rocky Mount	Va.	734	Ro	97	546	Ro	107½	742	Ro	121	775	Ro	113
Roanoke	Va.	705	----	97	519	----	102	715	----	126½	748	----	88½
Waynesboro	Va.	734	----	97	548	----	102	755	----	126½	788	----	88½
Christiansburg	Va.	682	----	97	496	----	102	703	----	126½	736	----	88½
Pulaski	Va.	686	----	97	500	----	102	707	----	126½	740	----	88½
Galax	Va.	738	----	97	552	----	102	759	----	126½	792	----	88½
Marion	Va.	728	----	97	542	----	102	749	----	126½	782	----	88½
Bristol	Va.-Tenn.	684	----	97	498	----	102	705	----	126½	738	----	88½
Group Average		739			556			757			790		

TARIFF AUTHORITIES:
J. J. Cottrell, Agent's I. C. C. 607.
N. & W. Ry., I. C. C. 8153.
A. P. Gilbert, Agent's I. C. C. 160.
A. P. Gilbert, Agent's I. C. C. 146.

EXPLANATION OF ROUTE SYMBOL:
Ro—Roanoke.

CROSS-EXAMINATION of MR. C. F. KEELEY, by Asst. Attorney-General Seawell:

The amount of service performed is only one of the items taken into account in fixing the freight rate, and by no means the main factor. We used to have two ways. The first factor was the value of the service to the man that bought the freight and the second factor the cost to the carriers. Between the two we arrived at a basis and taken as a whole it would enable the carrier to make some money out of the operation. The value to the person that bought the freight was easy to get at. A man would come to us and say we are going to ship an industry on your railroad and we will have to meet competition on other railroads, and to do that you have got to give us thus and so. Well, the usual process was, we cannot say we can make your rate exactly that, but on a whole lot of horses for instances, we got down to something both of us could make something. The cost of service is an element involved and that is difficult. It is almost impossible to come to any decision on any particular part of the railroad. Certain elements must be considered. Distance hauled, that is one of the things.

Q. And the other, the terminal and the amount of interterminal handling?

A. No, when we consider the freight rates, the amount of data was usually considered, but before we got through with it. So far as our Durham District and Winston-Salem District are concerned, the rates were rates we found in effect.

Q. I notice you use the past tense in considering the distance hauls. Do you mean that they are not now considered?

A. Without intending to make an address, I will say that for the last 40 years it has been a matter of com-

plaint before the Interstate Commerce Commission. Then the other element mentioned is a new thing.

We give it a very prominent place on the Winston-Salem District. It cannot be otherwise, because it costs more to operate one mile than two. It will not be possible for me to answer a question between terminal service or line haul service. I have never been able to make the difference.

Q. Doesn't it enter into the cost? The number of exchange of handling?

A. Yes, undoubtedly.

Q. When gross revenue is stated at so much per ton in two or more cases, the revenue earned per ton has no significance unless the distances hauled and the number of terminal or interchange services performed are the same in all cases, is that not true?

A. It has no significance unless the distance haul is considered.

I thought my direct testimony was fully descriptive to show the revenue from coal traffic handled over the Durham and Winston-Salem Districts, to show it was not as high as hauling coal to equal distant points on the main line. What is shown on my table is what we got. There is nothing else to be shown. I am talking of the selection of the commodity and the particular conditions under which it moves.

Q. Why did you not reduce the revenue to a net ton mile, or a gross ton mile basis, so that the Exhibit would not possibly be misleading?

A. Of course, the Exhibit is not misleading. It is 121 miles from Roanoke to Winston-Salem and 117 miles from Winston-Salem to Durham. Our Exhibit No. 2 says that our revenue for hauling coal over these lines was thus and so. I referred in my direct testimony that even if there was a higher level of rates for coal traffic

on the Winston and Durham Districts our revenue therefrom is considerably less than from the rates on the main line, and as to coal over the main line we didn't divide it up. We usually deliver it at the main line.

I state that the revenue from the general haul was very much reduced by concessions we had to make to other roads participating. I suggest that a right good deal of our revenue would be absorbed—reduced. It is not true that the higher rate we get the greater loss we have. You cannot gain any idea of the revenue of the traffic from the Winston-Salem and Durham Districts by the rates alone. The majority was received from lines we had to allow revenues and it changed the picture. I did state that normally if you had a higher rate our division would be correspondingly more, but there would be exceptions.

My Exhibit No. 4, taking the first bracket of the Exhibit says that the total number of revenue carloads other than coal and coke moving into Winston-Salem from the North in 1931 was 20,584, and the Exhibit says that out of this number 15,177 were delivered to connections at Winston-Salem, leaving the difference between the two figures to represent the carloads terminated at Winston-Salem. The reference I made to the character of tobacco moving out of Winston-Salem, was made from data at Winston-Salem which indicated that 95% of the tobacco traffic was less than car load traffic, and that was actually the rates that were applied. The figures on the Exhibit speak for themselves. There was no manufactured tobacco from Lynchburg. But in official territory, tobacco shipped at Lynchburg or Roanoke would be the class rates from Richmond, the same sort of a rate. The rate would not necessarily be the same from Richmond as Winston-Salem. It is lower. I didn't mention the Richmond situation, because we are dealing with the question of revenues handled for the branch line. We do not reach Rich-

mond with our lines, therefore I didn't mention Richmond rates.

Q. Do you contend that the average level of commodity rates is as low in official territory?

A. I do not. It is humanly impossible to say whether the level in total is higher or lower. The level of rates or the revenues producing rates, you must take into consideration the amount of freight moving under those rates. No, I was not speaking of rate system, how in the North it moves at class rates, in the South at commodity rates, which are relatively low.

Q. I still don't quite get you. You don't contend that all of the freight moving under the commodity rate, under class territory and under official territory, are under same conditions, whether or not you contend it is lower or as low in Southern Territory?

A. No, sir, I am not attempting to estimate these two levels. It is not humanly possible to do so.

Q. Have you participated in the trial of any of those freight rate cases from Southern Territory, where discriminatory rates have been considered?

A. In the I. C. C. No.___. I have made a great deal of preparation in that case, and before the testimony of defendant was over, I was promoted to a new job.

Q. Have you sought to defend the higher rates in Southern territory?

A. The only one I recall I dealt with the level of coal freight rates to our Winston-Salem District where an attack was made on the rate to Virginia.

I wasn't doing that as a witness, but the detail of our defense was that the rates were properly adjusted. There may have been others.

Q. At page 30 of your direct testimony you comment on Mr. Roberts' Exhibit R-14, which shows a graphic comparison of the net ton-mile revenue earnings of the

Norfolk & Western and four other trunk lines and four intra-state carriers in North Carolina. Do I understand correctly that it is your opinion that the relationship shown on that Exhibit is about right, according to your judgment, after studying the situation?

A. No, I explained that the cause of the different levels of revenue per ton mile, in Mr. Roberts' Exhibit R-14 was caused by the fact that we had a higher percentage of low paying freight.

What do I mean by "proper relation" at the bottom of page 30 of my direct testimony? Well, as I remember it, in Mr. Roberts' testimony, he undertook to show that the alleged deficiency was due to the fact that we had failed to report a certain amount of revenue to North Carolina authorities. This was meant to say that it seemed to me after a study of these exhibits, that we had made a proper report of the amount of traffic. I explain this situation to my own satisfaction by saying that the average lading on the Norfolk and Western in 1929 was 54 tons, as compared with 26.8 on the Norfolk Southern; 26.2 on the A. C. L.; 28.1 on the S. A. L. and 29.6 on the Southern Railroad. It is not my understanding that the average lading of new traffic handled in North Carolina in 1929 was 54 tons. That figure was not available. I tried to get it, but I wanted to try the average rating in North Carolina. The percentage might be even more striking.

Q. Now, do you know that on Mr. Conrad's Exhibit No. 11 of record in this case, that he shows that the total of North Carolina traffic, including coal, coke and other traffic, during the year 1929 consisted of 89,983 car loads, a total of 2,719,814 tons, or an average of 30.2 tons per car load?

A. No, I don't know about that, but Mr. Conrad's Exhibit speaks for itself.

If that figure is correct, it would not upset my reasoning as applied to Roberts' Exhibit R-14, not necessarily for we haven't got a combination Exhibit for the other four roads.

Q. And do you know that as the result of revising the revenue assignment to Norfolk Carolina to a mileage prorate basis, Mr. Vaughan has substantially increased the amount of revenue assigned to the State, which would completely change the picture of the relationships between the Norfolk and Western and other roads as shown on Roberts' Exhibit R-14?

A. I wonder if it was. My opinion is that it would not be substantially changed to the extent that Mr. Vaughan's figures would have to be revised. No, this was a system figure on Mr. Vaughan's exhibit and would not affect Mr. Conrad's exhibit at all.

I cannot think this would materially change the result of my conclusions respecting the propriety of the relationships as now shown on that exhibit.

Q. Mr. Keeley, you have no knowledge of the number of net ton miles, or the percentage of total net ton miles, which class rate traffic represents of the total freight traffic volume handled by the Norfolk and Western Railroad in North Carolina during any or all of the years 1927, 1928 and 1929?

A. I don't and I don't believe any other human being has it.

I don't believe they keep net ton miles separate by stations. I do not know what proportion of the traffic during those years consisted of tonnage moving on commodity rates. I do not know what proportion of the traffic during those years had its origin or destination in Eastern Trunk Lines or New England Territory, or either of them. I have no information respecting the actual yield of revenue per net ton mile on business handled

wholly or partly in North Carolina which originated on our road and was delivered to connections, which was received from connections and terminated on our line, and which was received from connections and delivered to other connections.

Q. In the beginning of your testimony, as I understand it, you state that it is impossible to show that the actual revenue was in excess of the mileage prorate?

A. No, I said the conclusion was not workable, that you cannot tell about the level of the rates. At the bottom of page 2, I said "that it is impossible to determine the relative rate levels." At the conclusion of my testimony I was asked what was my view of mileage prorate for assignment of revenue to the State of North Carolina, and I said I thought it was the best that could be done, because it is simply impossible to prove that a straight mileage prorate of revenue does not attribute to the State of North Carolina all the revenue that is earned there.

My testimony was to show that it was impossible to show the rate levels. It had nothing to do with total revenues, but the question was asked me "What is your view of the statutory formula of straight mileage prorate for assignment of revenue to the State of North Carolina?" and I answered that it was the best that could be done. I don't know about there are some ways to tell whether the actual revenue received in North Carolina is less, equal to or greater than the system as a whole. We might check every piece of business that moved over our railroad over certain lines and lump it all together and get something out of it except that we never get an average haul that would give us a basis. Even then I don't see how it would be possible to get rid of the prorate system. I have not attempted to deal with any of the costs of maintaining our terminal at Durham or Winston-Salem. I have not the slightest idea whether that has

been done. Mr. Vaughan or Mr. Conrad might but I do not know.

MR. R. H. SMITH, being duly sworn, testified as follows:

DIRECT EXAMINATION, by Mr. Cox:

I am General Superintendent of the Eastern Division, Norfolk & Western Railway Company, and reside at Roanoke, Va. In 1927-1929, I was Superintendent of the Radford Division. The Pulaski District is a part of the Radford Division.

Vaughan Exhibit C, which has been handed me, was prepared in my office. The figures were prepared in my office at the request of Mr. Vaughan, the Assistant to the Comptroller, Mr. Gooch Vaughan. I have in my office the means by which a separation can be made of the Abingdon Branch expenses from the Pulaski District expenses. The records in my office are the original records from which the data on Exhibit C could be assembled. Exhibit C represents the results of compilations in my office made under my supervision.

CROSS-EXAMINATION, by Mr. Seawell:

By my supervision I mean by my clerks.

Q. Not by you?

A. Yes, sir, in my office.

Q. You did not at all help to examine the documents and make up this particular exhibit?

A. Not the detail figures, but it was my duty to continuously supervise the keeping of the records from which this exhibit was prepared and to know those records were kept accurately and accurately prepared.

I did not personally check these figures against the originals.

Q. I would like to have a direct answer to that question. You didn't personally check any of the figures of this exhibit against these original figures which you say it was your duty to supervise?

A. No, sir, not the details.

I mean the exact details of the figures. My knowledge of the operating expenses was such that I knew and would know whether the figures were out of line. I did check the figures against my general knowledge of operating expenses. I didn't go into the details.

Referee: Have you got the person who made this up?

Mr. Cox: It was made up by a great many people.

Mr. Seawell: You mean you could tell the accuracy of these figures, whether these figures were correct?

Witness continues: Reasonably, yes sir. The necessity of having it done was so that the figures would exactly show the data desired. To my best knowledge and belief, I believe they are correct. I am prepared to testify to the general accuracy of these figures. I have a personal knowledge. I have not checked the details of these figures. I have checked, for instance, the first item Norfolk & Western account No. 201, Superintendents. I personally checked the details of that figure. I personally checked item C. T. 371. The other items are made up from a summary of various reports and I didn't personally check the detail compilation.

Q. Doesn't your connection with it amount to this—you had a request from Mr. Vaughan to have the exhibit prepared, and you communicated the request to some other person and the exhibit was prepared?

A. Yes, sir, and in addition to that, my personal knowledge of the operating expenses was such, that in going over the statement, I know that it was substantially correct.

Q. Then taking these other items that you didn't check, you had a personal knowledge that in dispatching trains that $3,078.90 was correct for 1927? You carried that in your mind?

A. That is another figure that I personally checked because it was a very simple figure from the pay roll.

I didn't personally check 373. I didn't because that was a pay roll record of several stations and I didn't attempt to go through that. It was there for me, all were there.

Q. You didn't personally check 373—Station Employees?

A. I didn't personally check the compilation of all of 373—Station Employees. I knew it was substantially correct. All of those records are in my office.

Plaintiff moves to strike out Exhibit C and the foregoing testimony of Mr. Smith (1) because it is irrelevant and (2) because the originals from which they have been obtained and the persons making the compilations are not present.

RE-DIRECT EXAMINATION, by Mr. Cox:

The Exhibit Vaughan C is the work of a number of persons. It was transmitted to me through regular departmental channels. It would not have been practical to have brought here all those records upon which it was based and all the persons connected with it into this court. The records are very numerous.

RE-CROSS EXAMINATION, by Mr. Seawell:

Those records are not here. They are still kept in Roanoke, Va.

By the Referee: Were all of the records in one office or segregated in various offices of the railroad?

A. They are segregated in several offices.

RE-DIRECT EXAMINATION, by Mr. Rivinus:

The data on which that exhibit is based is made up in the same way as is regularly done for the railroad company.

Q. And from your practical knowledge of the division, do you know that the expenses on the Abingdon Branch is far in excess . . . . ?

A. Yes, sir; in great excess.

It is my business to know these things. The detail data which I say I have not personally examined, consists of pay rolls, dispatch records, train sheets, probably literally thousands of papers under my supervision and under my control.

By the Referee: What is your division? A. My division at the time covered by this report was the Radford Division, of which the Abingdon Branch was a part.

RE-CROSS EXAMINATION, by Mr. Seawell.

The Abingdon Branch extends from Abingdon, Va., to Elkland, N. C. In order to make or to show the operating expenses in North Carolina, I have to make an allocation of that particular branch.

Q. In compiling the expenses of that particular branch, you allocated between North Carolina and that particular branch in Virginia, you couldn't compile a separate expense for North Carolina?

A. Some of those could be kept.

Q. You didn't do it?

A. Not in this particular report.

I assigned to North Carolina 51.54%.

Q. I understood you now to say that it does not show separately in North Carolina?

A. Only shows it by way of division. North Carolina is a part of that branch.

By the Referee: How long is that branch to Elkland?

A. About 75½ miles. Slightly over half is in North Carolina.

(Signed) R. H. SMITH.

K. V. CONRAD, recalled, testified as follows:

I am the same K. V. Conrad who has previously testified in [illegible]ase, stating, among other things, that I am Assistant [illegible]perintendent of Transportation of the Railway.

Q. In objections heretofore filed, the State questioned your qualifications to testify as an expert and the propriety of certain portions of your testimony. You have already given a brief description of the functions of the office of Superintendent of Transportation. Can you now give us briefly your own duties and experience and the situation attending the preparation of the Exhibits filed by you?

A. The office of the Superintendent of Transportation has custody of original records, among others, showing the movement, weight and loading (contents and weight thereof) of equipment and of locomotives and trains and of coal purchased and used. I am an executive officer in that office and as such have custody and supervision of such records, and my duties, among others, consist of the making of analytical studies and compilations relating to various Railway problems, such as, among others, rate cases, abandonment of branch lines, costs involved in various actual or proposed activities, such as, for illustra-

tion determining whether or not the cost of one method of operation is lower than another method. I prepare and correlate data to meet various operating questions and purposes and have testified as a witness in rate, abandonment and other proceedings before State and Federal Courts and Commissions. I have been doing this class of work for several years.

Q. Who prepared the Exhibits filed by you in this case and from what records?

A. Exhibits 2, 3 and 11 were prepared from data furnished me by the Accounting Department, which in turn obtained the data from Waybills or Foreign Line Settlement Division Sheets. I ask for data from the Accounting Department that I want. They furnish it and I correlate it.

Exhibits 4, 5 and 13 were prepared from the records in the office of the Superintendent of Car Service—which is a subdivision of the Transportation Department—from what are known as "Conductors' Wheel Reports"—a report which shows the initial and number of the car, contents, points between which moved, gross weight of car and contents and weight of car, time of departure and arrival of trains, the locomotive used and the name of the engineer and conductor. The Superintendent of Car Service is the office that has immediate custody of these records.

Exhibit 9 was prepared from records in the Transportation Department, consisting of the "Conductors' Wheel Reports" and what are known as "Coal Wharf Reports," which show the coal issued to the engines.

All of Exhibit 10 (with the exception of the wage cost data used in the calculations thereon involving wage costs) was prepared in and from records in the Transportation Department, consisting of the "Conductors' Wheel Reports," "Coal Wharf Reports" and "Invoices

for Fuel Purchased." The wage costs involved in the calculations shown on this exhibit were compiled by the Accounting Department, which vouchers, payrolls and keeps records of disbursements.

Exhibit 12 was compiled by the Accounting Department with my collaboration, partly from records in the Transportation Department but principally from records in the Accounting Department. The transportation Department's contribution was the train and car miles from which calculations involving them were made.

There are at present 119 people employed in the general office of the Transportation Department, including the office of the Superintendent of Car Service. The various original papers that constitute the records from which the exhibits reflecting transportation department data are prepared will aggregate hundreds of thousands and are so numerous that it would be impossible to produce or inspect same at any trial. The exhibits that I have filed and the figures to which I have testified are the results of the work of numerous clerks and other departmental officials in the Transportation Department or the Accounting Department. All of the exhibits that I have filed, with the exception of Exhibits 1, 6, 7, 8 and 12, have been compiled and prepared under my supervision from data assembled through regular departmental channels. When we desire information from a given department, we request same through the head of the department, who causes it to be assembled through regular sub-divisions of his office and then transmits it to us, but the production of all of the original records from which it is compiled would be an impossibility and the compilations themselves are in turn the result of the work of numerous clerks and departmental officials of that department. Data assembled by the Transportation Department and used by it or furnished other departments is

what its records reflect. The office of the Superintendent of Transportation is the final repository of the original records that I have mentioned as being therein.

Q. How was Exhibit 6 prepared?

A. H. H. Copeland & Son, who prepared this exhibit, are expert accountants and engineers who specialize, among other things, in making special studies and reports for banking, industrial and statistical purposes. For example, if the Railway desired to float a bond issue, the banks would refer to Copeland & Son for a study of the situation attending the railroad, and the map, Exhibit 6, would be one of the phases that Copeland & Son would develop. The data from which Copeland & Son prepared this map comes partly from the Transportation Department and partly from the Accounting Department.

Exhibit 8 was prepared in the office of the Chief Engineer of the Railway and came to us through regular channels in response to a request for information as to the grades on the various parts of the Railway. The information shown thereon has for several years been in use by various departments of the Railway having occasion to employ it. While I did not personally prepare the exhibit, I am entirely satisfied as to its correctness.

Exhibit 1 is a map prepared by Rand, McNally and Company, of New York, nation-wide known map makers and compilers of statistics. I am not advised as to the mathematical precision of the scaling of the map but for the purposes of this case it gives as of 1927-1929 a sufficiently correct geographical picture of the Railway's lines, their relative length, location and direction and their connections with other carriers and geographical relations to competing lines. Since the filing of the map, the branch line from Potts Valley Junction to Paint Bank, Virginia, on the Radford Division, has been abandoned by order

of the Interstate Commerce Commission, and just last week all of the Abingdon Branch lying in North Carolina, with the exception of 20.84 miles thereof lying between the Virginia line and West Jefferson, N. C., has also been ordered abandoned by that Commission. Hereafter there will only be 20.84 miles of the Abingdon Branch in North Carolina.

Q. From what sources did you obtain the data as to the mileage of the Railway and the portions thereof lying in the respective states through which it operates

A. From the office of the Chief Engineer. However, substantially all departments of the Railway are kept supplied by recurrent reports and compilations from appropriate departments with the necessary incidental data for the conduct of their respective departments and have knowledge thereof as a result of familiarity with the routine of their respective departments.

Q. Where did you obtain the tonnage figures mentioned in the first three paragraphs of Answer 5 in your previous testimony?

A. The 59,712,795 tons of total revenue-paying freight carried in 1929 is reflected on my Exhibit 13 and Vaughan's Exhibit A. The 48,204,273 total tonnage originated on our line and the 42,038,015 tons of coal originated on our line were obtained from the annual report of the Norfolk and Western Railway Company to the Interstate Commerce Commission for the year 1929.

The 79.6 percent was obtained from statements currently issued by our Accounting Department showing disposition of Norfolk and Western coal shipments. The 72 percent is reflected on my Exhibit No. 2 and the 67.7 percent was obtained from tonnage figures similarly compiled for the year 1930.

Q. Where did you obtain the figure 45% used in Answer 6?

A. This is obtained from my Exhibit No. 3.

Q. As the result of the Railway's revised computation upon an actual mileage prorate basis of gross freight revenues apportioned to North Carolina, has it become necessary for you to revise any of the figures mentioned in your Answer 9-a?

A. Yes, the figure $195,975.12 mentioned therein should be $223,706.84.

Q. Where did you get the figures reflected in the fourth paragraph of Answer 11 (of your former testimony) reflecting the number of tons that locomotives of various sizes can handle on the respective operating districts of the Railway?

A. From locomotive rating figures fixed by the Transportation Department, based upon tests and actual performance, and which ratings are published in working Timetables issued for guidance of employees. As I have previously stated, our own department has original records showing the size and weight of our various locomotives and the "Conductors' Wheel Reports" that I have previously mentioned show the locomotive used and the weight handled. The office of the Superintendent of Motive Power, which involves mechanical engineering, can and does mathematically determine and report to us the tractive power of the individual locomotive, and experience with what the individual locomotives can actually pull confirms these determinations. The actual locomotive performance constitutes one of the original records in our department. In short, all of the information embodied in the fourth paragraph of my original Answer 11 is from records in my own department, and as a result of my long familiarity with matters of this kind and previous computations made to determine these from facts, I am able to state what these calculations in said records reflect in this respect.

As a result of Mr. Vaughan's revised calculation of gross freight revenues upon the actual mileage prorate basis, it became necessary for me to revise some of the figures in Answer 14 of my former testimony.

The North Carolina gross revenues figure for 1927, used in that answer, should be $1,579,850.54, and the system ratio of locomotive repairs, depreciations and retirements applied to this figure would produce a result of $141,238.63 instead of $123,730.05. There were some minor percentage changes also necessitated in the first paragraph of Answer 14, and hence for the sake of convenience I have recopied Answer 14 inserting over the original figures thereon the revisions necessitated by Vaughan's revision of gross revenue, and herewith file same as Conrad Exhibit Revised Answer 14.

Q. Where did you obtain the figures 7,824 tons and 10,609 tons used in Answer 19 of your former deposition?

A. These are merely compilations from original records in our office, namely, the "Conductors' Wheel Reports." The comparisons of 15.6 to 717.5 are from the same original records.

Q. Where did you obtain the figures as to the number of freight cars and coal cars that the Railway owns?

A. These were compiled from original records in our office showing those facts. Likewise that is one of the functions of our department.

(Signed) K. V. CONRAD.

CONRAD EXHIBIT—REVISED ANSWER 14.

Question 14 and answer to Question 14 from Conrad's original testimony and showing changes caused by reapportionment of Interstate Freight Revenue. (Interlineations indicate corrections.)

Q. 14. You have given reasons why the transportation and maintenance of way expenses are higher on the branches entering North Carolina than on the balance of the system. What is the situation with respect to maintenance of equipment expenses?

A. 14. Maintenance of equipment expenses make up the larger part of the total of railroad and operating expenses other than those of maintenance of way and transportation. On one of the exhibits that will be introduced by one of our Accounting Department witnesses, which will be designated "Vaughan—Exhibit A, Sheet 2," it will be observed that for the year 1927 Maintenance of Equipment expense comprised 30.51% of all system operating expenses, Maintenance of Way and Structures comprised 22.54% thereof, and Transportation comprised 41.59% thereof, the total of these three being 94.64% of all operating expenses for the year, Maintenance of Way and Structures and Transportation together being 64.13% of the total. These same expenses figured upon the basis of a mileage prorate for the North Carolina mileage show that Maintenance of Equipment comprised 27.50% of the North Carolina expense, Maintenance of Way and Structures 22.85% thereof and Transportation 45.94% thereof, the three together totaling 95.29% of the expense of operating in North Carolina.

The expenses for maintenance of equipment are partly for repairs, depreciation and retirements of locomotives, and partly for the same items of cost in connection with cars. Exhibit No. 7 of two sheets heretofore introduced shows separately these items of expense for locomotives and for cars, as assigned to North Carolina, and what these expenses would be if developed by application of system ratio of these expenses to system revenues. For example, on Sheet 1 of said Exhibit, it will be noted that the expense of locomotive repairs, depreciation and re-

tirements apportioned to North Carolina on the basis of a mileage prorate of such expense for the branches or districts entering the State is $248,427.58, whereas if we applied the system ratio of locomotive repairs, depreciation and retirements to the North Carolina earnings, these expenses would be $141,238.63. The detail of this calculation is shown on Sheet 2 of said Exhibit 7, wherein it will be noted that the system locomotive repairs, depreciation and retirements amounted to $9,913,600.14. This figure constituted 8.94% of the system revenues for the year 1927. Applying on Sheet 2 of this system 8.94% to the North Carolina revenues, to-wit, $1,384,005.08, we obtain the figure $141,238.63. Per unit of traffic, the expenses for repairs, depreciation and retirements of locomotives are higher in North Carolina because of the light train load a locomotive can handle on our lines in North Carolina as compared with the average train load handled on the system as a whole. Comparison of the train load has been given previously. As previously stated, the train load is smaller in North Carolina principally because of the grades on the branches entering the State, but wherever the train cannot be loaded heavily a greater number of trains and hence a greater number of locomotives are required to haul the same volume of traffic, and hence the maintenance cost is higher per unit of traffic.

Defendant closes its evidence.

ADMISSIONS

The Railway admits that the rate data used by Roberts was published in the tariff from which he quoted and that subject to the exceptions mentioned by the witness, Keeley, the tariffs were lawfully in effect.

The tariffs referred to are as follows:

p 72 N. & W. GF2d—JCC 8056—8/9/26 to 1/15/30
p 81a—N. & W. Jones JCC 1851
938
1460
1938
2123
2100
Cotterell 731
p 64—reference made to 100 ICC 513
p 61—(R 110) C. W. Galliger ICC 110
B T Jones ICC 2294
Distances—B4 ICC 8515
C & O 11081
N&W 8377
NYC 1536
CBQ 17392
M & St L B 402

P 51
55—N & W Coal & Coke Tariff 4623—ICC 38313
Tariff 7/20/27
(17 rate and Dist. Tariffs)

The introduction of the Tariffs referred to is waived.

The Railway admits and the State admits also that in so far as reports of the Interstate Commerce Commission referred to, they may be used so far as competent and revelant without formal introduction of them.

The State withdraws any objection made to the introduction of the various tables and compilations from the records of the Norfolk & Western Railway Company, based upon the failure to present the original records for examination, or the introduction as witnesses of the clerks who are said to have made the said compilation.

The State retains its objection to the competency and relevancy of such evidence and its effect.

The Railroad Company does not waive its objection on grounds of law to the Roberts testimony.

MR. W. G. WOMBLE, being duly sworn, testified as follows:

EXAMINED by Asst. Attorney-General Siler.

My name is W. G. Womble. The position I occupy with the Corporation Commission is Director of Railroad Transportation. That pertains principally to rates and service. I have been engaged in the work of railroad rates and transportation mileage something like 40 years. I think I am familiar with rate levels for the years 1927, 1928 and 1929.

Q. Do you know, if there is any, what difference in rate levels in what is known as Southern territory or Official classification for those years?

Objection by the Railway on the ground that the question is irrelevant to this case.

A. It is common knowledge that the rate levels in the South on the same class of products generally are higher than in the North.

The railroad moved to strike out the answer on the ground that it expresses unsupported conclusion of the witness and also on the ground that it is not responsive to the question.

I have personal knowledge of those rate levels during these years. From that knowledge I have an opinion satisfactory to myself as to which is the higher rate.

Q. What is it?

Objection by the Railway.

A. That the rate levels in the Southern territory are higher than in the Northern territory.

I mean official territory by Northern. My personal knowledge by examination and investigation goes that far.

EXAMINATION of MR. WOMBLE by the Referee:

Q. Do you know the relative commodity rates in the two territories are higher or lower?

A. Of my own personal knowledge I cannot tell you about all commodity rates.

Plaintiff closes its evidence.

The State moved for judgment of non-suit at the conclusion of the Railway's testimony and renewed the motion at the conclusion of all of the testimony. Each motion was overruled by the Referee.

The quotations contained in paragraph 4 of the judgment in this cause are taken from the Reply Brief for Norfolk and Western Railway Company, with the exception of the words in parentheses, filed with the Referee, which was before Judge Grady and considered by him as follows:

"There is no disagreement between the parties here on this subject; (referring to the unitary character of the defendant's business) nor is it contended for the railway that the business of transporting particular shipments of freight within, into, out of, and through the State of North Carolina, is not unitary. All of the component factors of effort and expense, such as maintenance of way, of equipment, transportation and the like may be deemed to unite to accomplish the carriage of the particular shipment, which is the service the Railway Company sells." (The words in parentheses were added by Judge Grady).

* * * * * * * * * * *

"We agree with our opponents that where a business not being separable in all its parts, and it being impossible to evaluate with mathematical accuracy the revenue-producing effect of the several factors, whether located in one or in the other, the Court will not permit the fact that the earning factor is located either in one State or the other, or the revenue is captured either in the one State or the other, to be conclusive or controlling, or to deprive either State of its just and fair proportion of the tax on the revenue."

The foregoing matter does not appear in the brief filed by the Railway Company before Judge Grady, after the hearing before him, and the brief filed before Judge Grady contained the following language on page 31:

"The Court will observe that the Railway Company's admission that the business of transporting particular shipments of freight within, into, out of and through the State may be regarded as a unitary business in the sense that all of the component factors of expense which go into the carriage of such particular shipments united to accomplish their carriage, is far from being an admission (as the State says in its present brief, page 8) that 'the Railway's business in its entirety is conducted as a unit.' The mass of the Railway main line traffic nowhere touches the State, and the admission of the Railway Company has no relation to such traffic."

The language of the Reply Brief from which Judge Grady quoted (see above) is as follows:

"'The brief for the State expresses at the outset the practical necessity for a unit of measure of interstate businesses generally for the purpose of State taxation. There is no disagreement between the parties here on this subject; nor is it contended for the Railway that the business of transporting particular shipments of freight within, into, out of and through the State of North Carolina,

is not unitary. All of the component factors of effort and expense, such as maintenance of way, of equipment, transportation and the like may be deemed to unite to accomplish the carriage of the particular shipment, which is the service the Railway Company sells. So a case like this is distinguishable in fact from cases like the Underwood, Hans Rees, Kent Coffey, and other cases where the effort of the taxpayer was to separate the activities, manufacture, distribution, selling and the like, which in combination produce the income. We agree with our opponents (brief for the State, p. 17) that where 'a business not being separable in all its parts, and it being impossible to evaluate with mathematical accuracy the revenue-producing effect of the several factors, whether located in one or in the other, the Court will not permit the fact that the earning factor is located either in one State or the other, or the revenue is captured either in the one State or the other, to be conclusive or controlling, or to deprive either State of its just and fair proportion of the tax on the revenue.'"

Upon the conclusion of the testimony, the Referee rendered his Report, as set out in full in the record, which was filed in the office of the Clerk of the Superior Court of Wake County, together with the foregoing evidence, exhibits, admissions and objections to testimony. Plaintiff filed exceptions to the Referee's Report, which were duly heard by his Honor, Henry A. Grady, Judge Presiding, at June Term, 1934, of the Superior Court of Wake County. The Court rendered and filed Findings of Fact and Judgment on the 28th day of December, 1934, as set out in the record, to which the defendant filed exceptions as hereinafter set out and appealed to the Supreme Court.

EXCEPTIONS AND NOTICE OF APPEAL.

Filed Jan. 7, 1935.

North Carolina—Wake County.
In the Superior Court.

State of North Carolina on Relation of A. J. Maxwell, Commissioner of Revenue, Plaintiff,

v.

Norfolk and Western Railway Company, Defendant.

The defendant, Norfolk and Western Railway Company, excepts to the findings of fact and judgment of his Honor, Henry A. Grady, Judge, filed in this cause in the office of the Clerk of the Superior Court of Wake County on December 28, 1934. The defendant's exceptions and the grounds upon which they are based are as follows:

1. For that the Court says in the concluding sentence of paragraph three of the findings of fact and judgment: "It is to be assumed that the Referee meant to say that the gross operating revenues from the North Carolina lines, considered separate and apart from the system, were less than the operating expenses within the same territory." This assumption is neither a finding of fact nor a conclusion of law and the Referee's statement of the matter referred to therein is supported by the record, is not ambiguous and is not subject to a varying assumption by the Court.

2. For that the Court says in the concluding sentence of Section 4 of the findings of fact and judgment: "We take then as an admitted fact that the business of the defendant Railway Company is unitary in character." The ground of this exception is that the argument quoted by the Court from the defendant's reply brief to the Referee is not an admission of fact and is not subject to the construction put upon it by the Court. As further

ground for said exception, the defendant Railway Company says that the character of its business is well defined by the evidence appearing in the record and there is no evidence to support a finding of fact by the Court that the entire business of the defendant Railway Company is unitary in character. The only argument made to the Court (as distinguished from the argument quoted from the brief to the Referee) will be found on page 31 of the brief of the Railway Company in the following language:

"The Court will observe that the Railway Company's admission that the business of transporting particular shipments of freight within, into, out of and through the State may be regarded as a unitary business in the sense that all of the component factors of expense which go into the carriage of such particular shipments unite to accomplish their carriage, is far from being an admission (as the State says in its present brief, page 8) that 'The Railway's business in its entirety is conducted as a unit.' The mass of the Railway main line traffic nowhere touches the State, and the admission of the Railway Company has no relation to such traffic."

3. For that the Court, in Section 5 of its findings of fact and judgment, says:

"5. The Court does not understand from the briefs filed that the defendant undertakes to contest the constitutionality of the North Carolina revenue statute, in the main, as construed by the Commissioner of Revenue, works an unreasonable hardship, and puts an unreasonable burden upon the defendant in this particular case. This being its contention, the burden rests upon it to prove the same by competent evidence."

The ground of this exception is that the language quoted does not correctly state the contention and position of the defendant. The defendant contends that as

applied to its peculiar circumstances, proven of record in this case, the North Carolina revenue statute produces an altogether unconstitutional result, in that net income within the State is ascertained and taxed where no net income in fact exists, or income is attempted to be taxed substantially in excess of the reality. As further ground for this exception, the defendant Railway Company says that this erroneous statement of the defendant's contention and position resulted in the Court's placing upon the defendant a burden of proof greater than that required by law and the facts and circumstances of this case.

4. For that the Court, in Section 6 of the findings of fact and judgment, finds the following fact: "The unit gross revenues on coal are less than those on other traffic." The ground of this exception is that the Court does not define unit gross revenues on coal and does not find as a fact how unit gross revenues on coal are to be determined. In the absence of a definition of unit gross revenues on coal, this finding of fact is unsupported by any evidence in the record. For further ground of exception to this statement, the defendant says that it is too general in its nature to constitute a proper finding of fact.

5. For that the Court, in the fourth paragraph of Section 6 of its findings of fact and judgment, finds the following fact: "The freight rates in Southern Territory are generally higher than freight rates on similar commodities in Official Territory." The ground of this exception is that this finding of fact unqualified is not supported by any evidence in the record. A further ground of exception to this finding is that, even if regarded as true, it is wholly inconclusive upon the ascertainment of gross revenues.

6. For that the Court, in the fourth paragraph of Section 6 of its findings of fact and judgment, finds the fol-

lowing fact: "The two principal branch lines entering North Carolina operate under the Southern Territory rates and ratings and certain arbitrary rates are published to apply to those lines which occupy relatively high levels." The ground of this exception is that this finding of fact unqualified is not supported by any evidence in the record. A further ground of exception to this finding is that, even if regarded as true, it is wholly inconclusive upon the ascertainment of gross revenues.

7. For that in the fifth paragraph of Section 6 of the Court's findings of fact and judgment, the Court finds the following facts:

"Generally speaking, the [illegible]noving over defendant's branch lines in North Carolina is superior in gross revenue quality, and moves under rates which are generally higher than those prevailing on the system at large outside the State of North Carolina."

The ground of this exception is that it is not supported by any evidence in the record. A further ground of exception to this finding is that, even if regarded as true, it is wholly inconclusive upon the ascertainment of gross revenues.

8. For that the Court in the first sentence of the seventh paragraph of Section 6 of the Court's findings of fact and judgment, the Court makes the following finding of fact and statement: "The unit cost of transportation in North Carolina is greater than the average on the remainder of the system; but the evidence is not conclusive as to what extent this inequality of cost obtains." The defendant Railway Company does not except to the finding of fact that the unit cost of transportation in North Carolina is greater than the average on the remainder of the system, but does except to the statement that "the evidence is not conclusive as to what extent this inequality obtains." The ground of this exception is that the state-

ment is not supported by any evidence in the record and is contradicted by evidence in the record of the exact extent of the inequality. For further ground of exception to this statement, the defendant says that the burden did not rest upon the defendant to show the extent of the inequaliy of cost by conclusive evidence.

9. For that in the third sentence of paragraph seven of Section 6 of the Court's findings of fact and judgment, the Court says: "In respect to the gross operating expenses, and the gross revenues received by the defendant, it may be well to state here, that the profits received by it were largely earned by a series of transactions, beginning in many cases with manufacture in North Carolina, and ending with sales in some other State." The ground of this exception is that the statement is not supported by any evidence in the record and it is apparent that it has reference to some fact situation other than that disclosed by the record.

10. For that in the first sentence of Section 7 of the Court's findings of fact and judgment, the Court says: "In making the returns the defendant used the statutory formula for determining gross operating revenues, but in determining net revenues disregarded the formula as to deductions for operating expenses and attempted to set up actual operating expenses within North Carolina."

The ground of the exception to this statement is that it is not supported by the record, the facts being, as shown by the record, that in making its return the defendant used the statutory formula for determining the gross operating revenue, but ascertained that the use of the formula for determining deductions for operating expenses produced a fictitious net income and, therefore, the defendant did set up actual operating expenses within North Carolina to show that the net income demanded by the Commissioner as earned in the State has no existence in

fact and is derived from the result of operations carried on wholly outside the State.

11. For that in the second sentence of Section 7 of the Court's findings of fact and judgment, the Court says: "The evidence seems persuasive that if the actual gross operating revenues should be determined the amount returned by the defendant would be increased by a much greater proportion than the operating expenses in North Carolina are increased over the operating expenses determined by the use of the statutory formula." The ground of this exception is that the said statement is neither a finding of fact nor a conclusion of law. If this statement is treated as a finding of fact, the defendant Railway Company excepts to it upon the ground that the gross operating revenues can only be determined by the statutory formula. The defendant Railway Company excepts to the statement, if treated as a finding of fact, upon the further ground that there is no evidence in the record showing that if the actual gross operating revenues should be determined by any method other than that fixed by the statute, the amount returned by the defendant would be increased in any amount.

12. For that in the concluding sentence of Section 7 of the Court's findings of fact and judgment, the Court says: "These results demonstrate the contention of the plaintiff that his use of the statutory formula in determining both gross revenue and operating expenses of the defendant for the years involved in this action does not work an unconstitutional or unreasonable burden upon the defendant." The ground of this exception is (1) that the statement is neither a finding of fact nor a conclusion of law and (2) that, if treated as a finding of fact, there is no evidence in the record to support it, and, if treated as a conclusion of law, it is erroneous.

13. For that in Section 8 of the Court's findings of fact and judgment, the Court says: "Upon the question pre-

sented for determination by the Court as to whether or not the effect of the statute in question as construed and applied by the Commissioner of Revenue works an unconstitutional or unreasonable burden upon the defendant, it is, therefore, found that the determination of the taxable income due by the defendant for the years 1927, 1928 and 1929 in the way and manner in which said taxable income was determined by the plaintiff does not work an unconstitutional or unreasonable burden upon the defendant, and that the amount of income determined is proper under the statute, and in this respect the findings of fact by the referee are reversed." If this statement is treated as a finding of fact, the ground of the exception of the defendant Railway Company is that there is no evidence in the record to support it and it is contrary to the uncontradicted evidence in the record; and, if it is treated as a conclusion of law, it is erroneous in that the Court does not conclude as a matter of law that the application of the tax formula to the defendant Railway Company provided by Section 312 of the North Carolina Revenue Act of 1927 and the same numbered section of the Revenue Act of 1929 results in the taxation of income substantially in excess of reality and beyond the taxing jurisdiction, and is therefore an unconstitutional denial of due process, is a burden on interstate commerce and is a denial of equal protection of the laws, in violation of the due process clause, the interstate commerce clause and the equal protection clause of the Constitution of the United States.

14. The defendant exeepts to the findings of fact and judgment of the Court upon the ground that it is impossible to determine therefrom in all cases whether a particular finding of fact of the Referee was affirmed or overruled and it is, therefore, impossible to determine which of the findings of fact of the Referee were adopted

by the Court as the basis for the Court's conclusions of law.

16. The defendant Railway Company excepts to the findings of fact and judgment of the Court upon the ground that the Court did not sufficiently find the facts upon which to base a conclusion of law as to the constitutionality of Sections 312 of the Revenue Acts of 1927 and 1929, when applied to the defendant upon the facts developed by the testimony presented to the Referee.

16. The defendant Railway Company excepts to the findings of fact and judgment of the Court upon the ground that the Court, over defendant's objection, considered the irrelevant and argumentative testimony of the plaintiff's witness, J. W. Roberts, relating to the Railway Company's gross operating revenues attempted to be determined by other than the statutory formula.

17. The defendant Railway Company excepts to the findings of fact and judgment of the Court on the ground that the Court disregarded the admissions of record made by A. J. Maxwell, Commissioner of Revenue, after hearing the formal exceptions of the defendant, in his findings and ruling upon said exceptions. In his findings and ruling, which appears of record in this case, the Commissioner admitted that after examination and analysis of the income tax returns of the defendant for the years 1927, 1928 and 1929, gross operating revenues had been found in accordance with the method prescribed by the statute; and the Commissioner admitted that his re-assessment of income taxes against the defendant had been made after careful analysis of the defendant's returns and audit of its accounts by a representative of the State Department of Revenue. Upon this record no issue was open for consideration by the Referee or by the Court of the correctness of ascertainment of defendant's gross operating revenues under the statute.

18. The defendant Railway Company excepts to the findings of fact and judgment of the Court upon the ground that the Court gives no consideration to the following admissions appearing in the testimony of the plaintiff's witness, J. W. Roberts, which were uncontradicted by any other testimony in the record:

"I think their (the Railway Company's) figures may be accepted at face value without being seriously misleading as respects the relation of operating expenses on the branch lines to those on the main lines of the system. On a unit basis, the branch line expenses are unquestionable higher, principally due to relatively lighter traffic density, and operating obstacles in the way of grades and curves, which are excessive on the branches as compared with the balance of the system." (Record, p. 464.)

Again, on page 57, he alludes to "higher operating costs experienced on the branch lines." On page 72 Roberts mentions "the high costs of operation on the branch lines serving North Carolina," etc. And finally on page 103 he admits that "it has been shown that the branch line expenses are relatively higher than the average for the system," etc.

19. The defendant Railway Company excepts to the findings of fact and judgment of the Court for that the Court overruled the specific findings of the Referee and failed to affirm and to find as matter of fact Referee's findings numbered 5, 6, 7, 8, 9, 10, 11 and 12. The ground of this exception is that the said specific findings of the Referee are based upon uncontradicted fact appearing in the record, in substance admitted by the sole witness for the State, and furnished the basis for correct conclusions as to the exact nature of defendant's business and the expense of conducting it within and outside the State, in definite contrast to the artificial and fictitious

method of ascertaining such expenses indicated by the income tax statute.

20. The defendant Railway Company excepts to the findings of fact and judgment of the Court upon the ground that the Court overruled the finding of the Referee that the State had submitted no data by which even an approximate finding could be made as to how much the level of rates in Southern Territory is, or how much greater the alleged actual revenue in North Carolina is, than the amount produced by the use of the statutory formulae.

21. The defendant Railway Company excepts to the findings of fact and judgment of the Court upon the ground that the Court overruled the Referee's conclusion of law that gross revenues of the defendant, arrived at by the use of the statutory formula, is approximately correct until the contrary is shown; and in overruling the Referee's finding of fact that no evidence was offered to show that the statutory gross revenue was not approximately correct.

22. The defendant Railway Company excepts to the findings of fact and judgment of the Court on the ground that the Court failed to find as facts and conclude as matter of law the findings of fact and conclusions of law requested by the Railway Company of the Referee.

23. The defendant Railway Company excepts to the findings of fact and judgment of the Court for that the Court did not find as a fact upon the undisputed testimony in the record that the Norfolk and Western Railway Company's system ratio of system expenses to system earnings was substantially less than the ratio of North Carolina expenses to North Carolina earnings of the Railway Company, and in not concluding as a matter of law upon such findings of fact that the ascertainment of the Railway Company's net income in North Carolina, pursuant

to Sections 312 of the Revenue Acts of 1927 and 1929, by deducting from the gross operating revenues prescribed by said sections the said system ratio, results in producing for taxation in North Carolina substantially more income than said Railway Company there earned and that hence said sections are, as to said Railway Company, unconstitutional in that they contravene the due process, equal protection and interstate commerce clauses of the Constitution of the United States.

NORFOLK AND WESTERN RAILWAY
COMPANY, Defendant,
By F. M. RIVINUS,
W. W. COXE,
BURTON CRAIGE,
THEODORE W. REATH,
MURRAY ALLEN,
Its Attorneys.

To the State of North Carolina, on Relation of A. J. Maxwell, Commissioner of Revenue, plaintiff in the above-entitled action:

You will please take notice that the defendant, Norfolk and Western Railway Company, excepts to the findings of fact and judgment rendered by his Honor, Henry A. Grady, Judge, filed in the office of the Clerk of the Superior Court of Wake County on December 28, 1934, upon the grounds above set forth, and appeals to the Supreme Court of North Carolina.

NORFOLK AND WESTERN RAILWAY
COMPANY, Defendant,
By F. M. RIVINUS,
W. W. COXE,
BURTON CRAIGE,
THEODORE W. REATH,
MURRAY ALLEN,
Its Attorneys.

Service of the foregoing exceptions and notice of appeal accepted and receipt of copy thereof acknowledged, this 7th day of January, 1935. No rights waived.

STATE OF NORTH CAROLINA ON RELATION OF A. J. MAXWELL, COMMISSIONER OF REVENUE, Plaintiff,

By A. A. F. SEAWELL,
Assistant Attorney-General.

It is agreed that the appeal bond shall be in the sum of $100.00, and that the defendant may have until February 15, 1935, within which to prepare and serve statement of case on appeal, and that the plaintiff may have until March 15th, 1935, within which to prepare and serve counter-case or exceptions.

This 7th day of January, 1935.

A. A. F. SEAWELL,
Assistant Attorney-General.
MURRAY ALLEN,
Of Counsel for Defendant.

ASSIGNMENTS OF ERROR.

The defendant groups its exceptions and assigns error as follows:

A. For that the Court overruled defendant's objection to the testimony of J. W. Roberts, witness for plaintiff, as follows:

I.

Norfolk and Western Railway Company, except as hereinafter noted, objects to the testimony of J. W. Roberts as irrelevant and incompetent, upon the following grounds:

(1) The figures constituting "Gross Operating Revenues" of the Railway Company for the purpose of income taxation are not subject to review by the Court and evidence relative thereto is incompetent because:

(a) The allegations of the Commissioner of Revenue containing such figures are not denied by the Railway Company and are, therefore, taken to be true for the purposes of this action.

(b) There is no exception to the finding of fact by the Commissioner of Revenue which raises an issue of fact as to such figures.

(c) There is an admission of record by the Commissioner of Revenue that the figures are correct and that the statute has been followed.

(2) The testimony attempts to set up methods of arriving at "Gross Operating Revenues" contrary to the statute.

(3) The evidence attempts to show net income by the application of a method which is not authorized by the statute and is contrary to the provisions of the statute.

(4) The evidence is argumentative.

(5) The opinions expressed are not based upon testimony, and are not competent as expert testimony.

This is Defendant's Exception No. A.

B. For that the Court overruled defendant's objection to the testimony of J. W. Roberts, witness for plaintiff, as follows:

II.

Defendant, except as hereinafter noted, objects specifically to question and answer No. 16 in the testimony of J. W. Roberts, comprising 97 pages, for reasons above set forth, and particularly to testimony comprised within pages 10 to 43, down to "Relationship of Rates to Oper-

ating Expenses," for reasons set forth above in objections numbered I, subdivisions 1, a, b and c.

Defendant does not object to the testimony of witness Roberts, beginning at the bottom of page 17, as follows:

"The Railway makes a monthly distribution of its revenues. For this purpose it uses the well-known punch card system. Under this system the salient facts are transcribed by punching holes in cards of standard size and design which can be sorted for distribution and totalized by electrically operated accounting machines of great speed and accuracy. A separate card is made for each consignment. With this detailed and flexible media and the use of high-speed automatic sorting and tabulating machinery the great volume of detail is brought under control . . . . . The mileage prorate requires a ratable distribution of revenue on the basis of the miles traversed by the consignment earning the revenue being distributed. For example, if a consignment was transported a total distance of 100 miles, of which 50 miles was in State A, 25 miles in State B, and 25 miles in State C, the revenue therefrom would be divisible 50/100ths to State A, 25/100ths to State B, and 25/100ths to State C."

Defendant admits that it uses the "well-known punch card system" and also admits that the taxing statute requires earned revenue to be spread over the entire haul and allocated to the State on a mileage prorate basis.

This is Defendant's Exception No. B.

C. For that the Court overruled defendant's objection to the testimony of J. W. Roberts, witness for plaintiff, as follows:

III.

Defendant, except as hereinafter noted, objects specifically to testimony of witness J. W. Roberts where, con-

trary to the taxing statute, he undertakes to show "The Relationship of Rates to Operating Expenses," as covered by pages 43 to 107, inclusive, of his testimony, and particularly to his statement, at page 43, second paragraph, that

"This phase of the subject may be approached by saying that the Net Revenue which may with propriety be included in Taxable Income is the difference between gross revenues actually earned, and the actual expenses which earned them," and at page 44, middle first paragraph, that

"Freight rates lawfully assessed by the Railway for transporting freight over the branch lines serving North Carolina are on a much higher level than rates assessed for the same quantity and quality of service on other portions of its system,"

And to all of his unsupporting and unprovable facts, arguments, and opinions, conclusions, and argumentative analyses, all of which are not testimony, but have been adduced to support his theories, within pages 43-107 inclusive, for reasons herein stated, for reasons set forth in objections numbered I, and for the further reason that his theories are neither based on law nor fact.

Defendant does not object to any of the statements of witness Roberts admitting the impossibility of proving his rate theories, typical of which admissions is his testimony at page 49 as follows

"Railway accounting and statistical practice presently disregards the specific source of revenue, that is, whether it is derived from class rates or commodity rates, and likewise fails to distinguish the tons or ton-miles moving under each kind of rates. Therefore, we have no definite information concerning the monetary importance of differences in ratings and class rate levels as they affect

the whole of gross revenue. To give such matters adequate consideration is virtually impossible."

Defendant admits that it is impossible to determine, separately, the revenue that each and every rate earns on a shipment, and has followed the taxing statute, which, recognizing this impossibility, concurred in by witness, spreads the rates over the entire haul, and allocates revenue to the State, on a mileage prorate basis.

This is Defendant's Exception No. C.

D. For that the Court overruled defendant's objection to the testimony of J. W. Roberts, witness for plaintiff, as follows:

IV.

Defendant objects specifically to conclusions of witness Roberts, unsupported by law or fact, on "Gross Revenue From Coal Traffic," as set forth on page 57 of his testimony, last paragraph, and to the facts, arguments, opinions, and argumentative analyses, all of which are not testimony, but have been adduced in support of his conclusions, within pages 50-57, for reasons herein stated and for reasons set forth in objections numbered I, II and III.

This is Defendant's Exception No. D.

E. For that the Court overruled defendant's objection to the testimony of J. W. Roberts, witness for plaintiff, as follows:

V.

Defendant, except as hereinafter stated, objects specifically to the conclusions of Witness Roberts, unsupported by law or fact, and unintelligible, on "Gross Revenues From Class Rated Traffic," as set forth in the last paragraph of page 70, and to his unsupporting facts, argu-

ments, opinions, and argumentative analyses, all of which are not testimony, but have been adduced in support of his conclusions, within pages 58-70, for reasons herein stated and for reasons set forth in objections numbered I, II, III and IV.

Defendant does not object to statement of Witness Roberts on page 60a, line four, as follows:

"It is not feasible to develop in an orderly and precise fashion the facts which we need to know to determine the actual relationship between Actual gross earnings and the Actual expenses which earned them, which has been made an issue in this case."

Nor to other like statements in his testimony showing the utter impossibility of arriving at the actual revenues which are earned by innumerable rates on the railroad system. See, also, page 49 of Roberts's testimony, quoted at the top of page -- herein.

Defendant does not object to statement of Witness Roberts at the bottom of page 60b and at the top of page 61; but reserves the right to answer this inclusion therein: "In the absence of special studies which the railroads alone are in position to make, such attempts, must fall short of being complete and satisfactory,"—Witness Roberts knows, as does everybody who is familiar therewith that not even the railroads can get reliable results out of such special studies as he has in mind. The full statement is as follows:

"Any attempt to measure the relative altitudes of rates applicable to a particular section of a railroad encounters many difficulties, and chief among them is the paucity of statistical data reflecting the volume of movement and revenues derived from different kinds of traffic. In the absence of special studies which the railroads alone are in position to make, such attempts must fall short of being complete and satisfactory. Their incompleteness

may result in their being misleading in some degree unless their purpose and premises are fully understood. The greater variety of traffic, the many different systems and schedules of rates which relate thereto, and the almost innumerable movements, precludes the selection of any reasonable number of individual shipments for presentation as representative instances, because we have no means of being sure that they are in fact representative."

Nor to testimony of Witness Roberts at the bottom of page 63, as follows:

"Now the effectiveness of these individual class ratios, the least of which is 174.24% and the greatest 287.50%, upon the aggregate gross revenue depends, of course, upon the volume of traffic moving under each class. As I have previously explained we have the most meager information bearing upon that point. In fact we have no information which relates to the business handled by the Railway over these branches during the years 1927, 1928 and 1929. The best light we have on that point is supplied by certain special studies of class-rated traffic moving at other times and over other railroads."

Defendant admits the utter impossibility of arriving at the revenues which each and every rate earns and so does the allocating taxing statute.

This is Defendant's Exception No. E.

F. For that the Court overruled defendant's objection to the testimony of J. W. Roberts, witness for plaintiff, as follows:

VI.

Defendant, except as hereinafter noted, objects specifically to conclusions of Witness Roberts, unsupported by law or fact, on "Gross Revenues Derived From Commodity Rates," at the bottom of page 78, and top of

page 79, of his testimony, and particularly to his conclusions at top of page 72, as follows:

"As far as I have been able to analyze the situation, however, it appears that the high cost of operation on the branch lines serving North Carolina have also been recognized in fixing the levels of Commodity rates applicable over the branches."

And to his unsupporting facts, arguments, opinions, and argumentative analyses, all of which are not testimony, but have been adduced in support of his conclusions, within pages 71-79, for reasons herein stated and for reasons set forth in objections numbered I, II, III, IV and V.

Defendant does not object to statement of Witness Roberts, at page 71, second paragraph, where he disputes his own theory of higher rates on branch lines:

"Commodity rates are generally lower than Class Rates, and when both kinds of rates are published for the same movement the Commodity Rates prevail."

Defendant does not object to statement of Witness Roberts at page 102, as follows:

"In the case of Southern class rates fixed by the Interstate Commerce Commission in the Southern Class Rate adjustment heretofore mentioned, they have a common level in Southern Classifications Territory generally, save in that part embracing the Florida peninsula."

Defendant admits that these rates are uniform on branch line and main line operations in Southern classifications territory, as Witness Roberts says, which proves that they were not raised to take care of admitted higher branch line expense.

This is Defendant's Exception No. F.

G. For that the Court overruled defendant's objection to the testimony of J. W. Roberts, witness for plaintiff, as follows:

VII

Defendant objects specifically to the conclusions of Witness Roberts, unsupported by law or facts, on "Through Class and Commodity Rates," at the end of page 84, and to his unsupporting facts, arguments, opinions, and argumentative analyses, all of which are not testimony, but have been adduced in support of his conclusions, for reasons herein stated and for reasons set forth in objections numbered I, II, III, IV, V and VI.

This is Defendant's Exception No. G.

H. For that the Court overruled defendant's objection to the testimony of J. W. Roberts, witness for plaintiff, as follows:

VIII.

Defendant objects specifically to the conclusions of Witness Roberts, unsupported by law or fact on "Norfolk & Western's Reported Gross Revenues Earnings in North Carolina Compared With Reported Earnings of Other Roads Serving the State," at the end of page 88, last paragraph, and to his unsupporting facts, arguments, opinions, and argumentative analyses, all of which are not testimony, but have been adduced in support of his conclusions, within pages 85-88, for reasons set forth in objections numbered I, II, III, IV, V, VI and VII.

This is Defendant's Exception No. H.

I. For that the Court overruled defendant's objection to the testimony of J. W. Roberts, witness for plaintiff, as follows:

IX.

Defendant objects specifically to conclusions of Witness Roberts, unsupported by law or fact, and directly contrary to the taxing statute, at pages 90 and 91, as follows:

"The significance of this situation is, that after having made a proper apportionment of gross revenue to the branch lines out of respect to the higher levels of rates which assuredly prevail thereon, the branch lines' gross revenues should then be re-apportioned as between North Carolina and Virginia in the ratio of 119.76 to 100.00, in favor of North Carolina. Thereafter the North Carolina gross revenues would be in shape to compare with actual operating expenses in North Carolina, in the process of testing the reasonableness of the use of the system operating ratio applied to a mileage prorate of gross revenue."

And to his unsupporting facts, arguments, opinions, and argumentative analyses, all of which are not testimony, but have been adduced in support of his conclusions, within pages 89-91, for reasons herein stated and for the reasons set forth in objections numbered I, II, III, IV, V, VI, VII, and VIII.

This is Defendant's Exception No. I.

J. For that the Court overruled defendant's objection to the testimony of J. W. Roberts, witness for plaintiff, as follows:

X.

Defendant admits that branch line expenses are higher than on the main line and excludes from the above objections, Witness Roberts' admission of this admitted and proven fact, at pages 45, 72, 75, 76, 78, 103, and elsewhere, a typical admission of this fact being at page 45, as follows:

"On a unit basis, the branch line expenses are unquestionably the higher, principally due to relatively lighter traffic density, and operating obstacles in the way of grades and curves, which are excessive on the branches as compared with the balance of the system."

Defendant objects, specifically, for reasons herein before set forth in objections numbered I, II, III, IV, V, VI, VII, VIII, and IX, to Witness Roberts' testimony on page 100:

"Now, one of the first, if not the very first, considerations encountered in making just and reasonable rates is that the rate shall be high enough to cover the cost of the service which earns it. This is true whether the rates apply to transportation over main lines, or branch lines, in this state or that state. It is a fundamental proposition."

Because this statement is nothing more than a theory of the witness, unsupported by facts and contrary to the law of this case, and because, further, witness admits on page 102, that rates are uniform on branch lines and main lines, which is an admission that rates were not raised on branch lines, to take care of admittedly higher operating branch line cost (Top of page 102):

"In the case of Southern class rates fixed by the Interstate Commerce Commission in the Southern Class Rate adjustment heretofore mentioned, they have a common level in Southern Classification Territory generally, save in that part embracing the Florida peninsula."

This is Defendant's Exception No. J.

K. For that the Court overruled defendant's objection to the testimony of J. W. Roberts, witness for plaintiff, as follows:

XI.

Defendant objects specifically to the conclusions of Witness Roberts, unsupported by law or fact, under his heading "Test of the Results of the Statutory Formula for Determining Taxable Income" at page 92, some typical conclusions being as follows (Page 103, end of first paragraph):

"A comparison of interstate rate levels shows that rates are on a higher level in North Carolina than elsewhere on the system. Consequently, the Railway's proposition seriously understates the net revenue" (Page 107, end of last paragraph):

"The State's formula possesses the laudable virtues of being simple in its application and consideration of the taxpayer's time and expense. In my professional opinion it is fair and not confiscatory as applied in this case."

And the defendant objects specifically to his unsupporting facts, arguments, opinions, and argumentative analyses, all of which are not testimony, but have been adduced in support of these unprovable conclusions, within pages 92-107, and elsewhere, in answer to question 16 of his testimony, for reasons herein stated, and for reasons set forth in objections numbered I, II, III, IV, V, VI, VII, VIII, IX and X.

This is Defendant's Exception No. K.

1. For that the Court says in the concluding sentence of paragraph three of the findings of fact and judgment: "It is to be assumed that the Referee meant to say that the gross operating revenues from the North Carolina lines, considered separate and apart from the system, were less than the operating expenses within the same territory." This assumption is neither a finding of fact nor a conclusion of law and the Referee's statement of the matter referred to therein is supported by the record, is not ambiguous and is not subject to a varying assumption by the Court.

This is Defendant's Exception No. 1.

2. For that the Court says in the concluding sentence of Section 4 of the findings of fact and judgment: "We take then as an admitted fact that the business of the defendant Railway Company is unitary in character." The ground of this exception is that the argument quoted by

the Court from the defendant's reply brief to the Referee is not an admission of fact and is not subject to the construction put upon it by the Court. As further ground for said exception, the defendant Railway Company says that the character of its business is well defined by the evidence appearing in the record and there is no evidence to support a finding of fact by the Court that the entire business of the defendant Railway Company is unitary in character. The only argument made to the Court (as distinguished from the argument quoted from the brief to the Referee) will be found on page 31 of the brief of the Railway Company in the following language:

"The Court will observe that the Railway Company's admission that the business of transporting particular shipments of freight within, into, out of and through the State may be regarded as a unitary business in the sense that all of the component factors of expense which go into the carriage of such particular shipments unite to accomplish their carriage, is far from being an admission (as the State says in its present brief, page 8) that 'The Railway's business in its entirety is conducted as a unit.' The mass of the Railway main line traffic nowhere touches the State, and the admission of the Railway Company has no relation to such traffic."

This is Defendant's Exception No. 2.

3. For that the Court in Section 5 of its findings of fact and judgment says:

"5. The Court does not understand from the Briefs filed that the defendant undertakes to contest the constitutionality of the North Carolina revenue statute, in the main, as construed by the Commissioner of Revenue, works an unreasonable hardship, and puts an unreasonable burden upon the defendant in this particular case. This being its contention, the burden rests upon it to prove the same by competent evidence."

The ground of this exception is that the language quoted does not correctly state the contention and position of the defendant. The defendant contends that as applied to its peculiar circumstanees, proven of record in this case, the North Carolina revenue statute produces an altogether unconstitutional result, in that net income within the State is ascertained and taxed where no net income in fact exists, or income is attempted to be taxed substantially in excess of the reality. As further ground for this exception, the defendant Railway Company says that this erroneous statement of the defendant's contention and position resulted in the Court's placing upon the defendant a burden of proof greater than that required by law and the facts and circumstances of this case.

This is Defendant's Exception No. 3.

4. For that the Court in Section 6 of the findings of fact and judgment finds the following fact: "The unit gross revenues on coal are less than those on other traffic." The ground of this exception is that the Court does not define unit gross revenues on coal and does not find as a fact how unit gross revenues on coal are to be determined. In the absence of a definition of unit gross revenues on coal, this finding of fact is unsupported by any evidence in the record. For further ground of exception to this statement, the defendant says that it is too general in its nature to constitute a proper finding of fac.

This is Defendant's Exception No. 4.

5. For that the Court in the fourth paragraph of Section 6 of its findings of fact and judgment finds the following fact: "The freight rates in Southern Territory are generally higher than freight rates on similar commodities in Official Territory." The ground of this exception is that this finding of fact unqualified is not sup-

ported by any evidence in the record. A further ground of exception to this finding is that, even if regarded as true, it is wholly inconclusive upon the ascertainment of gross revenues.

This is Defendant's Exception No. 5.

6. For that the Court in the fourth paragraph of Section 6 of its findings of fact and judgment finds the following fact: "The two principal branch lines entering North Carolina operate under the Southern Territory rates and ratings and certain arbitrary rates are published to apply to those lines which occupy relatively high levels." The ground of this exception is that this finding of fact unqualified is not supported by any evidence in the record. A further ground of exception to this finding is that, even if regarded as true, it is wholly inconclusive upon the ascertainment of gross revenues.

This is Defendant's Exception No. 6.

7. For that in the fifth paragraph of Section 6 of the Court's findings of fact and judgment, the Court finds the following facts:

"Generally speaking, the traffic moving over defendant's branch lines in North Carolina is superior in gross revenue quality, and moves under rates which are generally higher than those prevailing on the system at large outside the State of North Carolina."

The ground of this exception is that it is not supported by any evidence in the record. A further ground of exception to this finding is that, even if regarded as true, it is wholly inconclusive upon the ascertainment of gross revenues.

This is Defendant's Exception No. 7.

8. For that the Court in the first sentence of the seventh paragraph of Section 6 of the Court's findings of fact and judgment, the Court makes the following finding of fact and statement: "The unit cost of transportation

in North Carolina is greater than the average on the remainder of the system; but the evidence is not conclusive as to what extent this inequality of cost obtains." The defendant Railway Company does not except to the finding of fact that the unit cost of transportation in North Carolina is greater than the average on the remainder of the system, but does except to the statement that "the evidence is not conclusive as to what extent this inequality obtains." The ground of this exception is that the statement is not supported by any evidence in the record and is contradicted by evidence in the record of the exact extent of the inequality. For further ground of exception to this statement, the defendant says that the burden did not rest upon the defendant to show the extent of the inequality of cost by conclusive evidence.

This is Defendant's Exception No. 8.

9. For that in the third sentence of paragraph seven of Section 6 of the Court's findings of fact and judgment, the Court says: "In respect to the gross operating expenses, and the gross revenues received by the defendant, it may be well to state here, that the profits received by it were largely earned by a series of transactions, beginning in many cases with manufacture in North Carolina, and ending with sales in some other State." The ground of this exception is that the statement is not supported by any evidence in the record and it is apparent that it has reference to some fact situation other than that disclosed by the record.

This is Defendant's Exception No. 9.

10. For that in the first sentence of Section 7 of the Court's findings of fact and judgment, the Court says: "In making the returns the defendant used the statutory formula for determining gross operating revenues, but in determining net revenues disregarded the formula as to

deductions for operating expenses and attempted to set up actual operating expenses within North Carolina."

The ground of the exception to this statement is that it is not supported by the record, the facts being, as shown by the record, that in making its returns the defendant used the statutory formula for determining the gross operating revenue, but ascertained that the use of the formula for determining deductions for operating expenses produced a fictitious net income and, therefore, the defendant did set up actual operating expenses within North Carolina to show that the net income demanded by the Commissioner as earned in the State has no existence in fact and is derived from the result of operations carried on wholly outside the State.

This is Defendant's Exception No. 10.

11. For that in the second sentence of Section 7 of the Court's findings of fact and judgment, the Court says: "The evidence seems persuasive that if the actual gross operating revenues should be determined the amount returned by the defendant would be increased by a much greater proportion than the operating expenses in North Carolina are increased over the operating expenses determined by the use of the statutory formula." The ground of this exception is that the said statement is neither a finding of fact nor a conclusion of law. If this statement is treated as a finding of fact, the defendant Railway Company excepts to it upon the ground that the gross operating revenues can only be determined by the statutory formula. The defendant Railway Company excepts to the statement, if treated as a finding of fact, upon the further ground that there is no evidence in the record showing that if the actual gross operating revenues should be determined by any method other than that fixed by the statute, the amount returned by the defendant would be increased in any amount.

This is Defendant's Exception No. 11.

12. For that in the concluding sentence of Section 7 of the Court's findings of fact and judgment, the Court says: "These results demonstrate the contention of the plaintiff that his use of the statutory formula in determining both gross revenue and operating expenses of the defendant for the years involved in this action does not work an unconstitutional or unreasonable burden upon the defendant." The ground of this exception is (1) that the statement is neither a finding of fact nor a conclusion of law, and (2) that, if treated as a finding of fact, there is no evidence in the record to support it, and, if treated as a conclusion of law, it is erroneous.

This is Defendant's Exception No. 12.

13. For that in Section 8 of the Court's findings of fact and judgment, the Court says: "Upon the question presented for determination by the Court as to whether or not the effect of the statute in question as construed and applied by the Commissioner of Revenue works an unconstitutional or unreasonable burden upon the defendant, it is, therefore, found that the determination of the taxable income due by the defendant for the years 1927, 1928 and 1929 in the way and manner in which said taxable income was determined by the plaintiff does not work an unconstitutional or unreasonable burden upon the defendant, and that the amount of income determined is proper under the statute, and in this respect the findings of fact by the Referee are reversed." If this statement is treated as a finding of fact, the ground of the exception of the defendant, Railway Company, is that there is no evidence in the record to support it and it is contrary to the uncontradicted evidence in the record; and, if it is treated as a conclusion of law, it is erroneous in that the Court does not conclude as a matter of law that the application of the tax formula to the defendant, Railway

Company, provided by Section 312 of the North Carolina Revenue Act of 1927 and the same numbered section of the Revenue Act of 1929 results in the taxation of income substantially in excess of reality and beyond the taxing jurisdiction, and is therefore an unconstitutional denial of due process, is a burden on interstate commerce and is a denial of equal protection of the laws, in violation of the due process clause, the interstate commerce clause and the equal protection clause of the Constitution of the United States.

This is Defendant's Exception No. 13.

14. The defendant excepts to the findings of fact and judgment of the Court upon the ground that it is impossible to determine therefrom in all cases whether a particular finding of fact of the Referee was affirmed or overruled and it is, therefore, impossible to determine which of the findings of fact of the Referee were adopted by the Court as the basis for the Court's conclusions of law.

This is Defendant's Exception No. 14.

15. The defendant, Railway Company, excepts to the findings of fact and judgment of the Court upon the ground that the Court did not sufficiently find the facts upon which to base a conclusion of law as to the constitutionality of Sections 312 of the Revenue Acts of 1927 and 1929, when applied to the defendant upon the facts developed by the testimony presented to the Referee.

This is defendant's Exception No. 15.

16. The defendant, Railway Company, excepts to the findings of fact and judgment of the Court upon the ground that the Court, over defendant's objection, considered the irrelevant and argumentative testimony of the plaintiff's witness, J. W. Roberts, relating to the Railway Company's gross operating revenues attempted to be determined by other than the statutory formula.

This is Defendant's Exception No. 16.

17. The defendant, Railway Company, excepts to the findings of fact and judgment of the Court on the ground that the Court disregarded the admissions of record made by A. J. Maxwell, Commissioner of Revenue, after hearing the formal exceptions of the defendant, in his findings and ruling upon said exceptions. In his findings and ruling, which appears of record in this case, the Commissioner admitted that after examination and analysis of the income tax returns of the defendant for the years 1927, 1928 and 1929, gross operating revenues had been found in accordance with the method prescribed by the statute; and the Commissioner admitted that his reassessment of income taxes against the defendant had been made after careful analysis of the defendant's returns and audit of its accounts by a representative of the State Department of Revenue. Upon this record no issue was open for consideration by the Referee or by the Court of the correctness of ascertainment of defendant's gross operating revenues under the statute.

This is Defendant's Exception No. 17.

18. The defendant, Railway Company, excepts to the findings of fact and judgment of the Court upon the ground that the Court gives no consideration to the following admissions appearing in the testimony of the plaintiff's witness, J. W. Roberts, which were uncontradicted by any other testimony in the record:

"I think (the Railway Company's) figures may be accepted at face value without being seriously misleading as respects the relation of operating expenses on the branch lines to those on the main lines of the system. On a unit basis, the branch line expenses are unquestionable higher, principally due to relatively lighter traffic density, and operating obstacles in the way of grades and curves, which are excessive on the branches as com-

pared with the balance of the system." (Record, p. 464.)

Again, on page 57, he alludes to "higher operating costs experienced on the branch lines." On page 72 Roberts mentions "the high costs of operation on the branch lines serving North Carolina," etc. And finally on page 103 he admits that "it has been shown that the branch line expenses are relatively higher than the average for the system," etc.

This is Defendant's Exception No. 18.

19. The defendant, Railway Company, excepts to the findings of fact and judgment of the Court for that the Court overruled the specific findings of the Referee and failed to affirm and to find as matter of fact Referee's findings numbered 5, 6, 7, 8, 9, 10, 11 and 12. The ground of this exception is that the said specific findings of the Referee are based upon uncontradicted fact appearing in the record, in substance admitted by the sole witness for the State, and furnished the basis for correct conclusions as to the exact nature of defendant's business and the expense of conducting it within and outside the State, in definite contrast to the artificial and fictitious method of ascertaining such expenses indicated by the income tax statute.

This is Defendant's Exception No. 19.

20. The defendant, Railway Company, excepts to the findings of fact and judgment of the Court upon the ground that the Court overruled the finding of the Referee that the State had submitted no data by which even an approximate finding could be made as to how much the level of rates in Southern Territory is, or how much greater the alleged actual revenue in North Carolina is, than the amount produced by the use of the statutory formulae.

This is Defendant's Exception No. 20.

21. The defendant, Railway Company, excepts to the findings of fact and judgment of the Court upon the ground that the Court overruled the Referee's conclusion of law that gross revenues of the defendant, arrived at by the use of the statutory formula, is approximately correct until the contrary is shown; and in overruling the Referee's finding of fact that no evidence was offered to show that the statutory gross revenue was not approximately correct.

This is Defendant's Exception No. 21.

22. The defendant, Railway Company, excepts to the findings of fact and judgment of the Court on the ground that the Court failed to find as facts and conclude as matter of law the findings of fact and conclusions of law requested by the Railway Company of the Referee.

This is Defendant's Exception No. 22.

23. The defendant, Railway Company, excepts to the findings of fact and judgment of the Court for that the Court did not find as a fact upon the undisputed testimony in the record that the Norfolk and Western Railway Company's system ratio of system expenses to system earnings was substantially less than the ratio of North Carolina expenses to North Carolina earnings of the Railway Company, and in not concluding as a matter of law upon such findings of fact that the ascertainment of the Railway Company's net income in North Carolina, pursuant to Sections 312 of the Revenue Acts of 1927 and 1929, by deducting from the gross operating revenues prescribed by said sections the said system ratio, results in producing for taxation in North Carolina substantially more income than said Railway Company there earned and that hence said sections are, as to said Railway Company, unconstitutional in that they contravene the due process, equal protection and interstate commerce clauses of the Constitution of the United States.

This is Defendant's Exception No. 23.

24. For that the Court rendered judgment as set out in the record.

This is Defendant's Exception No. 24.

NORFOLK AND WESTERN RAILWAY COMPANY, Defendant,
By MURRAY ALLEN,
BURTON CRAIGE,
THEODORE W. REATH,
F. M. RIVINUS,
W. W. COXE,
Its Attorneys.

The foregoing is tendered by the defendant as its statement of case on appeal to the Supreme Court, this ____ day of February, 1935.

NORFOLK AND WESTERN RAILWAY COMPANY, Defendant,
By MURRAY ALLEN,
BURTON CRAIGE,
THEODORE W. REATH,
F. M. RIVINUS,
W. W. COXE,
Its Attorneys.

Service of the foregoing statement of case on appeal by defendant accepted and receipt of copy thereof acknowledged, on this the 28 day of February, 1935, within the time fixed by stipulation entered into by counsel for plaintiff and defendant. No rights waived.

A. A. F. SEAWELL,
Attorney-General.

It is agreed by counsel for plaintiff and defendant that the foregoing shall constitute the case on appeal to the Supreme Court.

This 18 day of March, 1935.

A. A. F. SEAWELL,
Attorney-General.
MURRAY ALLEN,
Of Counsel for Defendant.

CLERK'S CERTIFICATE.

North Carolina—Wake County.

I, E. Lloyd Tilley, Clerk of the Superior Court of Wake County, North Carolina, do hereby certify that the foregoing contains a full, true and perfect transcript of the record in an action lately pending in said court, wherein the State of North Carolina on relation of A. J. Maxwell, Commissioner of Revenue, is plaintiff and Norfolk and Western Railway Company is defendant, as the same is taken from and compared with the original now on file in this office.

In Witness Whereof, I have hereunto set my hand and affixed the seal of the Superior Court of Wake County at office in Raleigh, N. C., this 25th day of March, 1935.

E. LLOYD TILLEY,
Clerk Superior Court.

(Seal)

Commercial Printing Co., Raleigh, N. C.

[fol. 838] IN SUPREME COURT OF NORTH CAROLINA

DOCKET ENTRIES

Appeal docketed 25 March, 1935.
Argued 9 April, 1935.
Opinion by Stacy, Chief Justice, and Judgment, filed 18 September, 1935, as follows:

[fol. 839] IN SUPREME COURT OF NORTH CAROLINA, FALL TERM, 1935

No. 454

STATE OF NORTH CAROLINA ex Rel. A. J. MAXWELL, Comr.,
v.
NORFOLK AND WESTERN RAILWAY CO.

Appeal by Defendant from Grady, J., June Term, 1934, of Wake

OPINION—Filed Sept. 18, 1935

Proceeding to recover taxes paid under protest and alleged to have been erroneously or illegally assessed.

The Norfolk & Western Railway Company, hereafter called the defendant, duly filed with the North Carolina Commissioner of Revenue income tax returns for the years 1927, 1928 and 1929. None of these returns showed any taxable income for the specified period. On 27 October, 1930, the Commissioner of Revenue made reassessments against the defendant, upon the basis of said returns, which resulted in tax levies, with interest thereon, for the respective years, as follows:

Year	Tax
1927	$25,737.70
Interest	3,989.34
Total	$29,727.04
1928	$25,097.32
Interest	2,384.25
Total	$27,481.57
1929	$28,225.22
Interest	987.88
Total	$29,213.10

Under protest, duly filed, the defendant paid these assessments, aggregating $86,421.71, and proceeded, agreeably to the terms of the statute, to recover them back. Its protest having been overruled by the Commissioner, the defendant appealed from said ruling to the Superior Court of Wake County. Here the matter was referred, on motion of defendant, to Hon. J. Crawford Biggs, as referee, to find the facts and report the same, together with his conclusions of law, to the court.

[fol. 840] The defendant contended that the pertinent parts of the Revenue Acts of 1927 and 1929, as interpreted and applied by the Commissioner, "operated unconstitutionally upon protestant." With this contention, the Referee, upon the facts found by him, agreed, largely upon authority of Southern Ry. Co. v. Kentucky, 274 U. S. 76. On exceptions duly filed, the Judge of the Superior Court disagreed with the defendant's contention, overruled the determinative findings and conclusions of the Referee, upheld the constitutionality of the statutes, as had already been done in A. C. L. v. Doughton, 262 U. S. 413, found supporting facts, and concluded that the defendant had failed to show want of due process, or lack of equal protection of the laws.

From judgment dismissing defendant's protest, it appeals, assigning errors.

Attorney-General Seawell and Assistant Attorneys-General Aiken and Bruton for A. J. Maxwell, Commissioner of Revenue.

Theodore W. Reath, F. M. Rivinus, W. W. Coxe, Murray Allen and Burton Craige for defendant.

STACY, C. J., after stating the case:

It may be conceded, as appellant alleges, that, from a procedural standpoint, the record is not in very satisfactory shape. Much of it is beside the point. However, as we understand it, the issues involved, are comparatively simple. The case easily falls upon one side or the other of the constitutional line.

The defendant is a railroad, or public service corporation, operating in part within and in part without this State. It has three branch lines of railroad in North Carolina, with termini at Winston-Salem, Durham and Elkland. Each of the three branches connects directly with the de-

fendant's main line in Virginia at Roanoke, Lynchburg and Abingdon respectively.

[fol. 841] The statutory formula for ascertaining the net taxable income for such a corporation is set out in Section 312 of the Revenue Act, 1927, and substantially repeated in the same numbered section of the 1929 Act, as follows: "When their business is in part within and in part without the State their net income within this State shall be ascertained by taking their gross 'operating revenues' within this State, including in their gross 'operating revenues' within this State the equal mileage proportion within this State of their interstate business and deducting from their gross 'operating revenues' the proportionate average of 'operating expenses,' or 'operating ratio,' for their whole business, as shown by the Interstate Commerce Commission standard classification of accounts. From the net operating income thus ascertained shall be deducted 'uncollectible revenue' and taxes paid in this State for the income year, other than income taxes, and the balance shall be deemed to be their net income taxable under this act. That in determining the taxable income of a corporation engaged in the business of operating a railroad under this section * * * when any railroad is located partly within and partly without this State, then said net operating income shall be increased or decreased to the extent of an equal mileage proportion within this State of any credit or debit balance received or paid, as the case may be, on account of car or locomotive hire."

The defendant filed its returns for the years in question under the Revenue and Machinery Acts applicable at the time. They showed no taxable or net income, and no tax was tendered with the returns. Upon examination and investigation, the Commissioner of Revenue found that the statutory method of determining deductions from gross [fol. 842] operating revenues within the State had not been followed by the defendant in making out its returns. He thereupon applied the "yardstick" of the statute and revised the returns by deducting from "gross 'operating revenues' within this State," as ascertained by him, "the proportionate average of 'operating expenses,' or 'operating ratio,' for their (its) whole business, as shown by the Interstate Commerce Commission standard classification of ac-

counts," thus producing a net taxable income for each of the years in question.

It is stated in paragraph three of the judgment, to which no exception is taken, that no question is raised as to the Commissioner's method of computing the "gross operating revenues" of the defendant in this State. Only the method of computing the "gross operating expenses," or "operating ratio," as deductible items, is challenged. "Neither is any question raised as to the correctness of the taxes paid by the defendant, if the Commissioner be correct in his interpretation of the statute."

We may say, in passing, that the Commissioner of Revenue was under the necessity of following the statute, whatever the consequences. A. C. L. R. Co. v. Doughton, 262 U. S. 413. If this produced an arbitrary or unwarranted result, by placing an unreasonable burden upon the defendant, the fault was not his, but that of the law. The burden of showing this alleged unconstitutional result was on the defendant. It carried the burden to the satisfaction of the Referee (Hans Rees Sons v. Maxwell, 283 U. S., 123), but not to the satisfaction of the Judge of the Superior Court, who heard the matter on exceptions. Maxwell v. Kent-Coffey Mfg. Co., 204 N. C., 365, 168 S. E., 397, 291 U. S., 642. In this state of the record, according to our uniform practice, the finding of the Judge of the Superior Court prevails over that of the Referee. Pickler v. Pinecrest Manor, 195 N. C., 614, 143 S. E. 8; Kenney v. Hotel Co., 194 N. C., 44, 138 S. E., 349; State v. Jackson, 183 N. C., [fol. 843] 695, 110 S. E., 593; Justice v. Boone Fork Lumber Co., 181 N. C., 390, 107 S. E., 232.

It was said in Dumas v. Morrison, 175 N. C., 431, 95 S. E., 775, that the "findings of fact by a referee, though entitled to weight, are not conclusive, and if not justified by the evidence may be disregarded, or set aside by the court and a decree entered according to its own view of the evidence. It must be remembered that a judge of the Superior Court in reviewing a referee's report is not confined to the question whether there is any evidence to support his findings of fact, but he may also decide that while there is some such evidence, it does not preponderate in favor of the plaintiff, and thus find the facts contrary to those reported by the referee. The rule is otherwise in this Court, when a referee's report is under consideration. We

do not review the judge's findings, if there is any evidence to support them, and do not pass upon the weight of the evidence." See, also, Wilson v. Allsbrook, 205 N. C., 597, 172 S. E., 217, and Thompson v. Smith, 156 N. C., 345, 72 S. E., 379 (opinion in the latter case by Walker, J., pointing out the difference between the duties of the trial court and the appellate court in dealing with exceptions to reports of referees).

Nor would the defendant be entitled to succeed by simply assailing the method of computing deductible items in ascertaining net income. It must show the unreality of the resultant taxable income. Such was the holding in Underwood Typewriter Co. v. Chamberlain, 253 U. S., 113, and Bass, Ratcliff & Gretton, Ltd., v. State Tax Com., 266 U. S., 271.

On the record as presented, the defendant has failed to make apparent any reversible error.

Affirmed.

[fol. 844] IN SUPREME COURT OF NORTH CAROLINA

No. 454

STATE ex Rel. A. J. MAXWELL, Comm'r of Revenue,

vs.

NORFOLK & WESTERN RY. CO.

JUDGMENT—Filed Sept. 18, 1935

This cause came on to be argued upon the transcript of the record from the Superior Court of Wake County: upon consideration whereof, this Court is of opinion that there is no error in the record and proceedings of said Superior Court.

It is, therefore, considered and adjudged by the Court here, that the opinion of the Court, as delivered by the Honorable W. P. Stacy, Chief Justice, be certified to the said Superior Court, to the intent that the judgment is affirmed. And it is considered and adjudged further, that the defendant and surety, U. S. Fid. & Guar. Co. do pay the costs of the appeal in this Court incurred, to-wit, the sum of Twenty-seven and 10/100 dollars ($27.10), and execution issue therefor.

Edward Murray, Clerk of the Supreme Court.

[fol. 845] [File endorsement omitted]

IN SUPREME COURT OF THE UNITED STATES

[Title omitted]

Petition for Appeal, Assignment of Errors and Prayer for Reversal—Filed Nov. 6, 1935.

PETITION FOR APPEAL

Considering itself aggrieved by the final decision and judgment of the Supreme Court of the State of North Carolina in the above-entitled cause, Norfolk and Western Railway Company hereby prays that an appeal be allowed to the Supreme Court of the United States herein and for an order fixing the amount of bond thereon.

ASSIGNMENT OF ERRORS

Norfolk and Western Railway Company assigns the following errors in the record and proceedings in the said cause:

I. The Supreme Court of North Carolina erred in refusing to find Section 312 of North Carolina Revenue Act 1927 and the same numbered section of the Revenue Act of 1929 (which is in substantially the same words) unconstitutional and repugnant to the due process clause of the Fourteenth Amendment to the Constitution of the United States, because, by the use, for ascertainment of net income taxable [fol. 846] in North Carolina, of the ratio of operating expenses to gross operating revenues of the entire system of appellant, these sections assume, contrary to the fact established in the record, that the ratio between operating expenses and gross operating revenues of appellant's North Carolina branch lines approximately equals the same ratio for appellant's entire system, including main line which nowhere enters the State, thereby imposing arbitrary and unreasonable taxes upon appellant and taking its property without due process of law.

II. The Supreme Court of North Carolina erred in refusing to find Section 312 of North Carolina Revenue Act 1927 and the same numbered section of the Revenue Act of 1929 (which is substantially in the same words) unconsti-

tutional and repugnant to the commerce clause, Section 8 of Article I of the Constitution of the United States, because, by the use, for ascertainment of net income taxable in North Carolina, of the ratio of operating expenses to gross operating revenues of the entire system of appellant, these sections assume, contrary to the fact established in the record, that the ratio between operating expenses and gross operating revenues of appellant's North Carolina branch lines approximately equals the same ratio for appellant's entire system, including main line which nowhere enters the State, thereby imposing unreasonable and unconstitutional burden upon interstate commerce as conducted by appellant.

III. The Supreme Court of North Carolina erred in adopting the findings of fact made by the Judge of the Superior Court of Wake County as basis for the conclusion of law that appellant has not been deprived of rights guaranteed by the Fourteenth Amendment to the Constitution of the United States because such findings are:

(a) Contrary to the admissions of the State in the record; and

(b) Unsupported by evidence.

[fol. 847] IV. The Supreme Court of North Carolina erred in affirming the judgment of the Superior Court of Wake County, North Carolina, and in refusing to reverse said judgment upon the following grounds:

(a) In that the said Superior Court overruled, by implication at least, the specific findings of fact of the Referee to whom the case had been referred under State law. These findings were numbered by the Referee Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12; they are based upon uncontradicted facts appearing in the record, admitted by the sole witness for the State, and furnished the sole basis for correct conclusions as to the exact nature of appellant's business and the expense of conducting it within and outside the State.

(b) In that, in this State income tax proceeding, where the appellant's constitutional right depends upon ascertainment of net income earned within the State, the appellant as taxpayer is entitled as matter of law to specific findings of fact with regard to statutory gross income within the State and with regard to operating expenses attributable to

the earning of such gross income. The said Superior Court of Wake County made neither of these essential findings and made in fact no findings upon which to base the judgment here complained of. There is nothing in the judgment of the said Superior Court to support the opinion of the Supreme Court of North Carolina that the said Superior Court "found supporting facts" for the conclusion of law complained of.

(c) In that the Superior Court of Wake County admitted and gave controlling effect, over appellant's objection, to testimony of the State's sole witness that "the high costs of operation on the branch lines serving North Carolina have also been recognized in fixing the levels of commodity rates applicable over the branches" (Record, p. [fol. 848] 545, Objection, p. 627, and Assignment, p. 821); and that: "Freight rates lawfully assessed by the Railway for transporting freight over the branch lines serving North Carolina are on a much higher level than rates assessed for the same quantity, and quality of service on other portions of its system" (Record, p. 463, Exception, p. 623, Assignment, p. 817). The ground of this subdivision (c) of assignment is that the testimony quoted is irrelevant to any of the issues made in the case, represents the witness' opinion and is unsupported in the evidence); and is irrelevant to the statutory formula prescribed for the ascertainment of the factor of gross income in the computation of net taxable income.

(d) That the Superior Court of Wake County gave decisive effect to the testimony last quoted in irrelevant finding that the appellant's North Carolina branch lines operate in territory having relatively high rate levels, and in concluding with the supposition (as distinguished from fact finding) "That if the actual gross operating revenues should be determined the amount returned by defendant would be increased by a much greater proportion than the operating expenses in North Carolina are increased over the operating expenses determined by the use of the statutory formula." (Record, p. 151, Assignment, p. 830.) The ground of this assignment is that the quoted language of the Superior Court, if regarded as a finding of fact, is unsupported by evidence, is supposititious, is irrelevant to any issue made in the case and disregards the statutory formula for ascertainment of the factor of gross income.

(e) That the Superior Court of Wake County, North Carolina, refused to find the facts of statutory gross and of deductible expenses from which alone the existence of net income in North Carolina could be determined.

[fol. 849] The specific errors hereinabove assigned have demonstrably resulted in violation of the due process clause of the Fourteenth Amendment and of Section 8 of Article I of the Constitution of the United States.

PRAYER FOR REVERSAL

For which errors the appellant, Norfolk and Western Railway Company, prays that the said judgment of the Supreme Court of the State of North Carolina dated September 18th, 1935, in the above-entitled cause be reversed and a judgment rendered in favor of appellant and for costs.

Dated this November 2d, 1935.

Burton Craige, Murray Allen, W. W. Coxe, F. M. Rivinus, Theodore W. Reath, by Murray Allen, Counsel for Appellant.

[fols. 850 & 851] Bond on appeal for $1,000.00, approved and filed Nov. 6, 1935, omitted in printing.

[fol. 852] [File endorsement omitted]

IN SUPREME COURT OF THE UNITED STATES

[Title omitted]

ORDER ALLOWING APPEAL—Filed Nov. 6, 1935

The appellant in the above-entitled suit, Norfolk and Western Railway Company, having prayed for allowance of an appeal in this cause to the Supreme Court of the United States from the judgment made and entered in the above-entitled suit by the Supreme Court of the State of North Carolina on the 18th day of September, 1935, and having presented and filed its petition for appeal, assignment of errors and prayer for reversal and statement of jurisdiction

on appeal, pursuant to the statutes and rules of the Supreme Court of the United States in such case made and provided;

And the undersigned the Chief Justice of the Supreme Court of the State of North Carolina, being the highest court of the State in which a decision in this suit could be had, having found that the appellant in the State Courts of North Carolina drew in question the validity of a statute of the State of North Carolina on the ground of its being repugnant to the Constitution of the United States, and that the decision of the State Supreme Court of North Carolina was in favor of the validity of the said statute:

[fols. 853-871] It is now here ordered that an appeal be and the same is hereby allowed to the Supreme Court of the United States from the Supreme Court of the State of North Carolina in the above-entitled cause as provided by law; and it is further ordered that the Clerk of the Supreme Court of the State of North Carolina shall prepare and certify a transcript of the record, proceedings and judgment in this cause and transmit the same to the Supreme Court of the United States so that he shall have the same in the said Court within thirty days of this date.

And it is further ordered that security for costs on appeal be fixed in the sum of One Thousand Dollars ($1,000.00), and that the appeal bond presented by said appellant for One Thousand Dollars ($1,000.00) be and the same is hereby approved.

Dated November 2d, 1935.

W. P. Stacy, Chief Justice of the Supreme Court of the State of North Carolina.

[fols. 872 & 873] Citation, in usual form, showing service on A. A. F. Seawell, filed Nov. 6, 1935, omitted in printing.

[fol. 874] [File endorsement omitted]

IN SUPREME COURT OF THE UNITED STATES

[Title omitted]

PRÆCIPE FOR TRANSCRIPT OF RECORD—Filed Nov. 6, 1935

The Clerk of the Supreme Court of the State of North Carolina, in preparing and transmitting the record in the above-entitled cause to the Supreme Court of the United States, will include in the record the following:

1. The printed record in this cause in the Supreme Court of the State of North Carolina—pages 1 to 837 inclusive.
2. Docket entries in the Supreme Court of North Carolina.
3. The opinion of the Supreme Court of the State of North Carolina rendered on the appeal in this cause.
4. The judgment of the Supreme Court of the State of North Carolina, entered September 18th, 1935, affirming the judgment of the Superior Court of Wake County in this cause.
5. The appellant's petition for appeal, assignment of errors and prayer for reversal, statement of points relied upon and designation of parts of record to be printed, statement of jurisdiction on appeal, appeal bond, and order of the Chief Justice of the Supreme Court of the State of [fols. 875-898] North Carolina allowing an appeal to the Supreme Court of the United States, dated November 2d, 1935, and this præcipe.
6. The citation on appeal to the Supreme Court of the United States and acceptance of service thereof in behalf of appellee, filed with you on the 2d day of November, 1935.
7. Proof of service of petition for appeal, order allowing appeal, assignments of error and statement as to jurisdiction.

Dated November 2d. 1935.

Burton Craige, Murray Allen, W. W. Coxe, F. M. Rivinus, Theodore W. Reath, by Murray Allen, Counsel for Appellant.

Services of the foregoing præcipe accepted and receipt of copy thereof acknowledged, this 6th day of November, 1935.

A. A. F. Seawell, Attorney General of the State of North Carolina, Counsel for Appellee.

[fol. 899] Clerk's certificate to foregoing transcript omitted in printing.

[fol. 900] [File endorsement omitted]

IN SUPREME COURT OF THE UNITED STATES

[Title omitted]

STATEMENT OF POINTS RELIED UPON AND DESIGNATION OF THE PARTS OF THE RECORD TO BE PRINTED—Filed Nov. 30, 1935

Comes now the appellant, Norfolk and Western Railway Company, by its counsel and adopts verbatim its assignments of error hereinbefore filed as its statement of the points to be relied upon; and represents that the printed record in the Supreme Court of the State of North Carolina as already on file may be used for the hearing of the case.

Burton Craige, Murray Allen, W. W. Coxe, F. M. Rivinus, Theodore W. Reath, by (Signed) Murray Allen, Counsel for Appellant.

Service of the above statement of the points to be relied upon and of the record to be used for hearing of the case is hereby acknowledged and accepted.

A. A. F. Seawell, Counsel for Appellee.

November 2d, 1935.

[fol. 901] Service of the above statement of the points to be relied upon and of the record to be used for hearing of the case is hereby acknowledged and accepted.

A. A. F. Seawell, Counsel for Appellee.

November 6th, 1935.

[fol. 902] [File endorsement omitted.]

Endorsed on cover: File No. 40,164. North Carolina Supreme Court. Term No. 610. Norfolk and Western Railway Company, appellant, vs. State of North Carolina, on Relation of A. J. Maxwell, Commissioner of Revenue. Filed November 30, 1935. Term No. 610, O. T., 1935.

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SUPREME COURT OF THE UNITED STATES

OCTOBER TERM, 1935

No. 610

NORFOLK AND WESTERN RAILWAY COMPANY,
Appellant,

vs.

STATE OF NORTH CAROLINA ON RELATION OF A. J. MAXWELL, COMMISSIONER OF REVENUE.

APPEAL FROM THE SUPREME COURT OF THE STATE OF NORTH CAROLINA.

STATEMENT AS TO JURISDICTION.

THEODORE W. REATH,
F. M. RIVINUS,
W. W. COXE,
MURRAY ALLEN,
BURTON CRAIGE,
Counsel for Appellant.

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SUPREME COURT OF THE UNITED STATES

OCTOBER TERM, 1935

No. 610

NORFOLK AND WESTERN RAILWAY COMPANY,

Appellant,

vs.

STATE OF NORTH CAROLINA ON RELATION OF A. J. MAXWELL, COMMISSIONER OF REVENUE,

Appellee.

ON APPEAL FROM THE SUPREME COURT OF THE STATE OF NORTH CAROLINA.

STATEMENT OF JURISDICTION ON APPEAL.

Appellant herein undertakes to show the jurisdiction of this Court to review on appeal the judgment of the Supreme Court of the State of North Carolina.

(a) Statutory Provisions Which Sustain the Jurisdiction.

The jurisdiction of this Court is invoked under Section 237(a) of the Judicial Code as amended by the Act of February 13, 1925, U. S. Code, Title 28, Section 344, and as further

amended by Act of January 31, 1928, C. 14, sec. 1, 45 Stat. 54, and Act of April 26, 1928, ch. 440, 45 Stat. 466, U. S. C. A., Title 28, sec. 861(b).

The judgment of the Supreme Court of North Carolina is a final judgment under the law of the State: Article IV, Sections 2 and 8, of the Constitution of North Carolina.

(b) The Statute of the State of North Carolina the Validity of Which is Involved.

This appeal questions the validity of Section 312 of North Carolina Revenue Act of 1927 (Chapter 80, Public Laws of North Carolina, Session 1927, p. 247) and Section 312 of North Carolina Revenue Act of 1929 (Chapter 345, Public Laws of North Carolina, Session 1929, p. 562) as construed and applied by the Superior Court of Wake County, North Carolina, and the Supreme Court of North Carolina to the facts of the case of the appellant Railway as shown in the Record. In pertinent part both of these sections 312 (which for the present purpose are the same) provide that the basis of ascertaining net taxable income of railroads in North Carolina, which are required to keep records according to the standard classification of accounting of the Interstate Commerce Commission, shall be "net operating income" of the railroad as shown in such accounting when the business is wholly within the State, "and when their business is in part within and in part without the State, their net income within this State shall be ascertained by taking their gross 'operating revenues' within this State, including in their gross 'operating revenues' within this State the equal mileage proportion within this State of their interstate business and deducting from their gross 'operating revenues' the proportionate average of 'operating expenses,' or 'operating ratio,' for their whole business, as shown by the

Interstate Commerce Commission standard classification of accounts."

(c) Date of Judgment and Date on Which Application for Appeal is Presented.

The judgment sought to be reviewed was entered by the Supreme Court of North Carolina on September 18th, 1935. The petition for appeal, assignment of errors and prayer for reversal were presented together with this jurisdictional statement, citation and bond for costs to the Chief Justice of the Supreme Court of North Carolina on November 2d, 1935, and the appeal was allowed on said date.

Nature of the Case and Rulings of the Courts Below.

This case was brought by the appellant, a Virginia corporation, to recover income taxes imposed by the State of North Carolina. Appellant is a common carrier by railroad engaged in interstate commerce between North Carolina, Virginia, West Virginia, Ohio, Maryland and Kentucky and, through its railroad connections, with the other states of the Union and foreign countries. The State of North Carolina has collected annual income taxes on authority of the above quoted sections of the State Revenue Acts of 1927 and 1929 in the amount of $86,421.71 for the years 1927, 1928 and 1929.

In apt time at the hearing before the State Commissioner of Revenue, before the Referee appointed in the statutory appeal to the Superior Court of Wake County, before the Judge of said Superior Court and before the Supreme Court of the State the appellant Railway successively by written protest against the reassessment by the Commissioner (R. 23) by objections to testimony (R. 622) and requests for conclusions of law before the Referee (R. 72) and in argument upon the Referee's report before the